Creating Active Futures

Edited by

Thomas F. Cuddihy PhD

Eric Brymer PhD

Edited Proceedings of the 26th ACHPER International Conference
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incorporating the 20th Fritz Duras Memorial Lecture

Creating Active Futures

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Kelvin Grove Campus
Brisbane
Australia
The Queensland Department of Education and Training (DET) has been an enduring supporter of ACHPER QLD and is proud to be the major sponsor of the 26th ACHPER International Conference.

DET’s ongoing commitment to promoting the health and wellbeing of Queensland’s young people is demonstrated through the Queensland Government’s Eat Well Be Active initiatives such as Smart Moves and Smart Choices. These programs reflect international best practice and are closely aligned with the Conference’s theme, Creating Active Futures.

As advocates for good health, it is hoped that this conference will continue to inspire you to create active futures for all citizens.

A message from Hon. Geoff Wilson MP
Queensland Minister for Education and Training

It is with great pleasure that I welcome you to Brisbane for this the 26th International Conference of the Australian Council for Health, Physical Education and Recreation.

The Bligh Government has supported this conference because it acknowledges ACHPER’s role in supporting professionals who work in the areas of health, physical education, recreation and sport in both education and community settings. ACHPER and in particular the Queensland Branch and its Conference Organising Committee should be very proud of the program it has brought together.

I am particularly delighted to welcome visitors from a number of countries not only from the Oceania region but from more than twenty other countries around the world.

The Conference theme Creating Active Futures is relevant globally as governments and communities set their goals to promote healthy behaviours amongst children and youth. Conference participants are well aware of the role of education at all levels in regards to this challenge. Here in Queensland the Bligh Government is committed to creating a healthier Queensland as part of our Toward Q2 goals for 2020.

In partnership with the Federal Government we will continue to support and encourage teachers to provide quality health and physical education programs in schools.

I know you will be working hard but I hope you will take the time to enjoy some of the sights and attractions of our wonderful city. As you meet and share your work with colleagues and make new friends I hope you will remember that it happened in Brisbane and that you will consider coming back to see us again soon.

Hon. Geoff Wilson MP
Queensland Minister for Education and Training

A message from Dr Tom Cuddihy
Conference Chair

On behalf of the Conference Committee of the 26th National/International Biennial Conference of the Australian Council for Health, Physical Education and Recreation, I welcome you to the Conference and to Brisbane. I was privileged to be part of the Committee for the 2000 Pre Olympic Congress involving ACHPER that was held here in Brisbane and I am indebted to the many colleagues who have stood up once again to be your hosts.

The Conference is fortunate to have the generous support of sponsors you will see acknowledged in this booklet. The support of the Queensland Department of Education and Training and the School of Human Movement Studies of the Queensland University of Technology warrant special mentions.

This biennial event provides a challenging opportunity for members of our profession to share their research and experience across ACHPER’s areas of focus. The theme of the Conference Creating Active Futures, we believe provides us with the challenge as professionals to move beyond some of our current practices and to pay more attention to a world that must now find new ways for education and community settings to influence the health and well being of young people.

We are delighted that we have been able to acquire the services of a number of outstanding keynote speakers to inspire a program that covers a broad range of health, physical education and sport-related issues that should provide for all participants.

We will endeavour to provide you with the best possible assistance while you are with us to ensure that your stay in Brisbane is professionally challenging and socially satisfying.

Dr Tom Cuddihy
Conference Chair
CONFERENCE COMMITTEE

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KEYNOTE SPEAKERS

Professor Sara Ashworth (USA)
Dr. Sara Ashworth is currently director of the Spectrum Institute for Teaching and Learning. After 40 years of teaching and consulting in various academic arenas, Dr. Ashworth is retiring from Florida Atlantic University after 20 years to devote time to the Spectrum Institute. The Spectrum (articulated by Muska Mosston in 1966) is an internationally recognized theory that delineates a framework that underlies all teaching and learning options, shows the relative relationships and contributions among alternative teaching-learning behaviours, and provides a functional and foundational language for approaching pedagogical issues. For 25 years Drs. Ashworth and Mosston worked together to refine, expand, research, and implement in various school settings the Spectrum of Teaching Styles. National and international recognition has been given to the Spectrum.

Dr Tim Hopper (Canada)
Dr Hopper’s research interests center on qualitative research methodologies focused on teacher education and physical education. His recent work is on program-wide electronic portfolio development and understanding the complexities of learning to teach from situated learning experiences. Dr Hopper has conducted workshops on TGfU in England, Canada and Hong Kong. He is a co-editor of the next TGfU book to be published from conference papers presented at the 4th International TGfU conference held at UBC in 2008. He has published articles on TGfU, creative dance and innovations in teacher education. Working with his student teachers, he has created a continuously expanding website of TGfU and creative dance units of instruction.

Dr Duarte Araújo (Portugal)
Duarte Araújo - Sport Psychologist at Faculty of Human Kinetics – Technical University of Lisbon, Portugal. He teaches sport psychology to sport sciences students (physical educators, coaches, sport managers, fitness instructors). He regularly conducts psychological evaluations oriented to performance enhancement to high level athletes of different sports.

His research involves the study of expert decision-making in sport, which led to him receiving a young researcher awards at the European College of Sport Science in 2001 and at the Association des Chercheurs en Activités Physiques et Sportives (ACAPS) in 2002. His special interest is in applying his research to training and to collaborate with coaches in this application. He is a consultant for many coaches in many sports, essentially about the training of decision-making skill in sports. He organized the contents of the coaches’ courses on behavioural sciences/ sport psychology in three of the main Portuguese Sport Federations: Soccer, Sailing and Golf.
Dr Cherrell Hirst, AO (Australia) - Orator of the Fritz Duras Memorial Lecture

In her medical career, Cherrell Hirst gained a national reputation in the field of breast cancer diagnosis and screening as Director of the Wesley Breast Clinic (1984-2001). She was heavily involved in many state and national organisations, committees and conferences. But her most important work was probably in the establishment of various support programs at the Wesley of which The Kim Walters Choices program is the best known. This work with women and families with breast cancer was extended by her roles with the Breast Cancer Network, Encore and the Breast Cancer Association. In addition, her passion for the benefits of education took her to the Council of Queensland University of Technology (QUT) where she served as Chancellor from 1994 to 2004, and to the Brisbane Girls Grammar School Board of Trustees where she served for 16 years, ten as Chair (1996-2006). She has recently served as a member of the Higher Education Endowment Fund.

In recognition of her work in the fields of breast cancer and education, Cherrell has been awarded three honorary doctorates, a Centenary Medal in 2003 and the title of Officer of the Order of Australia (AO) in 1998. She was named Queenslander of the Year in 1995 and recently was elected to membership of the Academy of the Technological Sciences and Engineering.
Acknowledgements

As Conference Convenor, it is my duty and privilege to acknowledge and formally thank the many people who assisted in the planning, staging and finalisation of the 26th ACHPER International Conference.

Many of those people have been acknowledged in these edited proceedings or elsewhere. To those individuals, particularly the ICSSPE Executive and the Keynote speakers, again I express my appreciation of their many donations including their generosity with their time and energies. The Health and Physical Education (HPE) teaching profession relies on such people and when ACHPER QLD asked for their help it was extended quite willingly.

I must also thank the pre-service teachers who had (I hope) an exciting initiation into the HPE profession. These workers gave up their holiday time and ably and creatively assisted “on the spot” when Conference events required immediate actions. The high professional standard of future teachers was displayed for all to see.

The members of the QUT Faculty of Health and School of Human Movement Studies (led by Prof. Keith Davids and Dr. Ian Renshaw) were always supportive of the actions necessary to deliver a great event. QUT Events capably led by Amy Piekkala-Fletcher, provided great support throughout with the staging of the Conference.

The administration support provided by the National ACHPER Office staff and the Executive Director Jeff Emmel was both professional and enthusiastic. Staff and management of ACHPER QLD provided vital encouragement and assistance when asked. In particular, the QLD state President, David Keating OAM, was a tireless worker and a skilful seeker of sponsorship support.

A very special vote of thanks is offered to the Conference Secretary, Mrs. Pam Smith, who also wholeheartedly assembled the papers into this final format.

Finally, thank you to all those who travelled intrastate, interstate and internationally for their presentations and participation which contributed to the outstanding success of the Conference.


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CRICOS No 00213J
Physical education for the future

Physical inactivity has become a major cause of the global increase in non-communicable disease (World Health Organisation, 2009). In 2008, the World Economic Forum called for employers to be proactive in the prevention of non-communicable diseases in the workforce. A significant contributor to the development of a healthy workforce is a reliable pool of employees who are receptive to and aware of healthy lifestyle practices even before becoming employed.

Health and Physical Education (HPE) is often stereotyped as ‘doing sport.’ However, if HPE is to play a part in the development of a healthy workforce, then the HPE learning environment must be about creating meaningful learning for all, which is clearly more than the creation of elite athletes. The ultimate aim of health and physical educators must be about 1) developing lifelong and habitual physical activity; 2) developing generic physical skills; 3) inspiring holistic and positive emotional attitudes and 4) instilling a focus on evidence based knowledge as a framework for inspiring active citizenship.

As a response to the worldwide move to the development of healthier people, Australia currently has a strong momentum for an expanded and more unified role for HPE within a potential National curriculum. Other countries have engaged in such a process and much can be learned from their experiences of the process. The 2009 Australian Council for Health, Physical Education and Recreation (ACHPER) conference was a landmark conference that included an International group of experts from all continents and twenty three countries.

Creating Active Futures: Edited Proceedings of the 26th ACHPER International Conference is an amalgamation of research and professional perspectives presented at the conference. The papers in this volume emerged from those presented for peer review, rather than through seeking specific articles.

This volume is divided into sections based on the five conference themes: 1) Issues in Health and Physical Education (HPE) Pedagogy; 2) Practical Application of Science in HPE; 3) Lifestyle Enhancement; 4) Developing Sporting Excellence; 5) Contemporary Games Teaching. The ‘Issues in HPE Pedagogy’ section provides a diverse set of perspectives on teaching HPE with papers from a range of topics that include first aid, philosophy, access, cultural characteristics, methods and teaching styles, curriculum, qualifications and emotional development. The second section links science to teaching HPE and provides a range of valuable information on injury prevention, information technology, personality and skill development. Section 3 is a collection of writings and research about Lifestyle Enhancement. Topics include the important role of adventure, the natural world, curriculum, migrant viewpoints, beliefs and globally focused programs in the development of active citizens. The section on sporting excellence contains papers that undertake to explain an aspect of excellence in sport. The last section of this volume highlights some contemporary views on teaching games.

Thomas F. Cuddihy
Eric Brymer
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SECTION 1:

Issues in Health and Physical Education Pedagogy
The inclusion of first aid in an injury prevention curriculum program

Lisa Buckley, Mary Sheehan and Rebekah Chapman
Queensland University of Technology, Australia

Abstract

Prompt first aid can have considerable benefits. The Skills for Preventing Injury in Youth (SPIY) program aims to teach, in part, first aid skills along with additional injury prevention strategies. The approach to including first aid is both as an injury prevention strategy and a way in which to reduce the severity of injuries once they occur. This paper outlines an implementation trial of the SPIY program with particular emphasis on the delivery and implementation of first aid skills. SPIY demonstrated effectiveness with regard to first aid knowledge and as an injury prevention program. SPIY is taught in the Year 9 Health curriculum by HPE teachers. Students and teachers who undergo or deliver such training offer important perspectives about implementation. In addition independent observation of delivery provides further information about the program. The research aimed to examine teachers’ and students’ experiences of first aid activities within a school-based injury prevention and control program and identify key issues in delivery from independent observation of the program. Focus groups were held with 8 teachers who delivered, and 70 students who participated in the SPIY curriculum program. Results showed favourable reports on the delivery of first aid material however teachers noted challenges in delivering practical activities. In sum, first aid can be effectively implemented within the high school setting and both students and teachers identified multiple benefits and positive experiences after undertaking first aid training.

Keywords: First aid, Injury prevention, High school students, Health curriculum

Introduction

The problem of adolescent injury

In Australia there are around 7,800 deaths registered as being caused by injury each year. Injury also accounted for greater than $4 billion of health care expenditure in 2001-02 (AIHW, 2004). In an Australian study by Chapman and Sheehan (2005), 53% of students aged 13-14 years self-reported a transport injury in the 6 months prior to the survey (related to being a passenger, driver, cyclist or pedestrian). Similarly, in an extensive US survey of Grade 9 to 12 students’ self-reported behaviour in the past 30 days, 22.2% stated that they required a doctor or nurse for an injury, 28.8% had ridden with a drink driver and 9.9% had themselves driven after drinking. Further, 67.9% rode a bicycle in the past year and 83.4% of these adolescents reported that they rarely or never wore a helmet (Eaton et al., 2006).
This high rate of injury and engagement in risk-taking among adolescents suggests that this is an important developmental period in which to prevent and control injury. In this paper it is argued that training in first aid skills may be an appropriate strategy. Adolescent risk-taking is typically a group activity (Arnett, 2002; Preusser, Ferguson, & Williams, 1998). For adolescents there may not be an adult or medical professional to assist with managing the injury but there is likely to be another young person in the immediate surrounds who might offer assistance and obtain appropriate help. Thus it may be particularly relevant for adolescents to be skilled in managing injuries as well as in reducing their involvement in risk-taking behaviour.

First aid as an injury prevention and control strategy

Hussain and Redman (1994) reported that of 152 accidental injury deaths that occurred outside of hospital, 39% were potentially preventable. The authors suggested that first aid training should be more widely available as a potential strategy to reduce injury. Clark et al. (2002) indicated that the chances of survival are increased when a bystander follows the ‘chain-of-survival’ first aid technique. Assistance given in the few minutes immediately after a motor vehicle crash for example can have considerable benefits to those who are injured in terms of future health and well-being (Brodsky, 1984; Peterson & Russell, 1999). Differences can be associated with preventing death but also relate to reducing the severity of injury.

In addition, there is some research to suggest that first aid training has benefits in lessening the severity of injury in that it may motivate reduced risk-taking behaviour. Lingard (2002) found greater use of protective equipment and safer practices by construction workers following a standard first aid program. In focus group discussions with these construction workers, they also self-reported reduced overall risk-taking in the workplace. Further, Glendon and McKenna (1985) found reduced traffic crashes in an English town where 1200 individuals completed first aid training compared to a town where no such program was implemented. There are methodological limitations to these studies, however they provide some indication that first aid training might be preventative (i.e. reduce risk-taking) as well as control the severity of injuries.

Reducing adolescent injury through the high school curriculum

First aid skills can be taught to young people and their knowledge and skills retained over time. In the UK, 10-12 year olds have been shown to retain first aid skills for a period of 6 months (Toner et al., 2007). In the U.S., Kelley et al. (2006) found that 13 to 17 year olds can retain knowledge of CPR after at least 4 weeks. Campbell et al. (2001) compared a first aid training course delivered over 8 weeks with a comparison condition (an alcohol and drug prevention program of similar dose and duration). The adolescent participants in the first aid course had greater skills in responding to an emergency, understanding of a first aid kit and how to use it, and overall greater skills in first aid than those in the comparison program group. Thus first aid skills are able to be taught and retained by early adolescents. There is also evidence from other programs to suggest behaviour change can be achieved in a school context. For example, a number of effective curriculum approaches have been used to reduce alcohol and drug use and other risk-taking behaviours (Ellickson et al., 2003; Sheehan et al.,
The inclusion of first aid in an injury prevention curriculum program

School programs attempt to highlight attitudes towards risky behaviour and the potential benefits to not engaging in risks (Mc Bride et al., 2004).

Skills for Preventing Injury in Youth (SPIY) program

One program that has demonstrated effectiveness in reducing risk-taking behaviours and injury is the Skills for Preventing Injury in Youth Program (Buckley et al., accepted; Buckley & Sheehan, 2009). The SPIY program was designed with the assistance of St John Ambulance and through collaborations with researchers from the Centre for Accident Research and Road Safety – Queensland. The program was implemented in the high school curriculum of Health classes in a sample of South-East Queensland state high schools. It aimed to develop skills in injury prevention and control (including for example, transport and violence-related injuries) through combining first aid training with cognitive behavioural prevention strategies. The program targeted change in reducing adolescent risk-taking behaviour and taught skills in facilitating adolescents to protect their friends from engaging in risk-taking. The SPIY program consisted of a set of classroom activities in 50 minute lessons to be delivered over eight weeks. A teacher training day, teacher’s manual and student workbook were included with the program. With regard to first aid, teachers received certification in cardiopulmonary resuscitation (CPR) from St John Ambulance. Typically each lesson included the presentation of a risk-taking and injury scenario, an introduction to the management of first aid for the resulting injury and a cognitive behavioural strategy for preventing the risk-taking behaviour including through peer protection.

The present study

The aim of this study is to analyse data relating to the implementation of the first aid component of the Skills for Preventing Injury in Youth program, with particular attention to how first aid skill development can be taught during early adolescence and in the school setting.

Method

Participants

Participants were 70 students (n=32 males) from three randomly selected classes of those that participated in the Skills for Preventing Injury in Youth (SPIY) program (approximately 20% of all intervention students). There were approximately 6 to 9 students in each of ten focus groups. To maintain confidentiality no identifying details were collected from focus group participants, however the focus groups were conducted within a week of a quantitative study (Buckley, Sheehan & Chapman, 2009) and as such it is likely that the focus group sample is representative of the larger sample with regard to age (mean = 13.49) and sex (49% male). All students attending the selected class on the day were involved in the focus groups and no students refused their consent to participate in the discussions.

Nine of the eleven teachers (81%) who were originally trained and facilitated the program also participated in this study. The remaining two teachers involved in program delivery were unavailable at the time of the discussions.
Measures and procedure

Student experiences of the SPIY program and change in behaviour were examined through several open-ended questions, including, for example, "What did you learn last term?" and "Do you think you changed your behaviour?" Probing questions were used to follow-up and elicit greater detail following the first open-ended question. Focus groups, facilitated by a researcher trained in psychology, were approximately 20 minutes in duration and were audio recorded with participant consent.

Participant teachers initially completed a pen and paper questionnaire. Questions were designed to illicit information regarding coverage of the prevention material and reasons for failure to cover material. Following the survey, related issues were discussed. The discussion, which was approximately 20 minutes in duration, used guided prompts that were designed to assess key aspects of the program and overall perceptions. In one of the participating schools, all teachers were grouped after a staff meeting. In the second school, two teachers participated together in the discussion, while a further individual teacher was involved in an individual interview. The structure and timing of the discussions were designed to be most convenient to the schools and occurred either in a lunch break or after school.

In addition, an independent observer was employed to examine the delivery of the program and student and teacher experience in vivo. The observer, a former school teacher, was employed by the research team to examine approximately 20% of all classes. A standardised checklist was used for each class observed.

Results

Students’ experience of first aid

Students were asked in the focus group discussions what they learnt from SPIY. All participants from each group commented on learning about first aid with regard to two acronyms, "DRABCD" (ie. Danger, Response, Airway, Breathing, Cardiopulmonary resuscitation, Defibrillation) and "COWS" (ie Can you hear me? Open your eyes. What’s my name? Squeeze my hand.). These two acronyms are used to remember the procedures to prioritise first aid and check for casualty response. Many students also elaborated on why these two acronyms were most learnt, for example, "because you got to practice" (male) and "they're easy to remember" (female).

In relation to participants’ perceptions of behaviour change, most suggested they were more likely to give first aid now compared with before the program, “more likely to help people” (female). A number of insights were also provided in some of the focus groups with regard to helping a friend, including the potential difficulty; for example, "I'd be scared I'd break a rib" (female) and, "you might end up, like, killing the fella" (male). Most also recognised that it was important to get an adult or other experienced person to help, "if I was the only one there I would. But if there was someone older and more knowing about it, I'd leave it up to them and maybe go get help or something else" (male).
Material completion: Teachers’ reports

Teachers generally felt that they covered most of the first aid material each week. Around 4 of the 9 teachers each week felt they covered ‘all’ of the first aid material, between 4 and 5 reported covering ‘most’ of the first aid material each week and each week there was no more than 1 teacher who indicated they covered only ‘some’ of the first aid material.

Teacher reports of the reasons for not implementing particular activities are presented in Table 1. Teachers reported that the most common reason for failing to implement an activity was class disruption and too much material for lesson times (55.6% indicated ‘yes’), whereas no teachers felt that incompletion was due to the program material being unclear.

Table 1 Teachers Reported Difficulties in Implementation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too much in time frame</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Unclear manual</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Sections unimportant/irrelevant</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Class disruptions</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Higher literacy required of students</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Not appropriate for other reasons</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

Note. There was no missing data (N=9)

Generally teachers viewed the program favourably. For example, one teacher succinctly reported it was, “overall, good”. However most teachers reported or agreed with others that there were not enough lessons in the school term to cover all the material in the lessons. One teacher suggested that it “needed more weeks”. The physical materials appeared to be viewed particularly favourably both in terms of the student workbook and the teachers’ manual. One teacher commented that she might use the materials again, “the resources were fantastic; I put mine up on my shelf”.

The majority of teacher comments focused on the use of class discussions and interactive practical activities relating to first aid techniques and how easy or difficult they were to implement and facilitate. Many teachers felt that student behaviour issues made implementing discussions more challenging. Several of these teachers then reinforced the challenge of covering material in the allotted time as behavioural disruptions reduced the time available for discussions. For example, one teacher noted, “I just found all the questions and things sometimes took me a little too long because they were just a nightmare…maybe
have a backup worksheet”. However it is apparent that although it was challenging to implement practical activities they did indeed occur.

**Independent observations**

Time (measured in minutes) spent on each activity was measured by an independent observer and compared with time (in minutes) allocated in the design of the program. Teachers spent more time covering first aid material than was allocated (1.19 times). In terms of activities that were skipped, all teachers skipped sessions on triage, dealing with aggressive patients and defibrillation. Further, additional time was spent by all teachers on defining first aid, brief overview of checking for danger, and first aid for an alcohol overdose.

**Discussion**

The majority of research on first aid skills training is focused on adults. Nevertheless, there is some evidence, particularly from the U.S. and the U.K., to suggest that first aid can be taught and learned by high school students. The evaluation of first aid training for adolescents may provide an important insight into the value in disseminating first aid programs to the community.

The study sought to examine the implementation of the first aid component of an injury prevention program for Year 9s. A variety of methods were used to understand the implementation and they appeared to provide complementary data. The findings from students indicated the first aid strategies were well received. Program satisfaction is important to facilitate continued implementation of a curriculum (Fagan & Mahalic, 2003). The information is also valuable in early stages of the curriculum design process to provide detail about activities that should continue to be used to deliver first aid.

Of interest is that students perceived greater learning when they were able to practice skills. Being able to ‘learn by doing’ is a particularly important pedagogy with regard to first aid skills. In addition, part of the strategy of the curriculum was to include practical activities to deliver first aid and better facilitate interaction and discussion in the prevention messages. The other strategy that appeared to be well remembered was the use of acronyms, COWS and DRABCD. Students appeared to remember the acronym, what it stood for and the first aid implications of the acronym. The use of mnemonics is a commonly used memory aid and in this case it also seemed to be highly appropriate.

Not surprisingly teachers reported behaviour management challenges in the classroom and particularly so in delivering interactive and practical material. Such challenges have important implications for curriculum design in that sufficient time must be allocated for activities. Perhaps also it suggests a need to develop activities which are short and directive. Of note is that there was some difference between the teacher and observer reports of coverage of material. Although they were not measured in the same manner it appears that the observation data indicated less coverage of material than teachers reported. Whilst this is a common finding in process evaluations of school curriculum programs it does highlight the value in collecting evaluation data from multiple sources. Teachers provided feedback in
focus group discussions suggesting that they amended material slightly and thought that they were still meeting the aims of the activity. Such information provides valuable feedback for the future design of SPIY and other school based first aid programs, indicating a need to provide specific instructions on which activities need to be run as designed and which can be taught more flexibly. For example, one teacher in the absence of resources of a manikin had students draw chalk outlines to get an understanding of the site for chest compressions. The changes to delivery processes made by teachers also provide useful information in terms of ways in which activities may be altered for the better or for pragmatic reasons.

In summary it is positive to note that the program was well received. If teachers and students value a curriculum there is a much greater likelihood that it will continue to be implemented as designed (Fagan & Mahalic, 2003). Although the program demonstrated effectiveness in reducing risk-taking behaviour and increasing first aid knowledge, the implementation and program satisfaction evaluation is an important process to best ensure continued delivery of successful programs.

References


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Post modernism: Strengths and weaknesses as applied to education

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Abstract

Philosophy is an attitude of mind attempting to enlarge the scope of application of every notion and position that human beings account for in their thinking. It takes every word and every phrase and asks “what does it mean?” And in the words of Alfred North Whitehead, the pursuit of philosophy is the one avocation denied to omniscience. In addressing the philosophical area known today as “postmodernism,” one needs to address its origins in the history of philosophic thought through to its practices in current thinking, especially in the area of education. It has been blamed for a radical shift in teaching methods and the curriculum and it has certainly brought about crises, celebrated and lamented, by parents, the business world and the students themselves. Postmodernism questions meaning and terminology. It reacts against accepted truths and traditional positions developed in the march of human history. It purports to be radical and different and to bring not only greater understanding but more reality to subjects like ethics, metaphysics, knowledge and aesthetics. In order to understand where it is coming from one needs to delve right back into the history of human endeavour and existence.

Keywords: Meaning, Historic philosophic development, Sham of jargon and the importance of the good and the pragmatic (Plato and Aristotle).

Pre-Socratic Thinkers

Pythagoras (569 - 475 BC) was the first to be systematic about deductive reasoning. He was beguiled by aesthetics and numbers. Heraclitus (535 - 475 BC) believed there was a central fire in mankind that never dies and was the first philosopher to accentuate change. His great quote: “You cannot step into the same river twice,” is echoed today. Democritus (460 – 370 BC) believed in the idea of basic, elementary particles or atoms in the world of constant change. The Sophists were the first teachers and were interested in man himself. Man had useful opinions. The big truths were not as important as the feelings and they stood for the principle, “Might is right.” Socrates (469 – 399 BC) questioned everything in a tough, independent existence which culminated in his tragic suicide brought on by the Sophists. He believed, “the unexamined life is not worth living.” He shifted from scientific enquiry to ethics, believing in the just, the true, and the good. Knowledge was a virtue and evil was ignorance. He introduced us to what we call the dialectic; i.e., a question demanding an answer. Unfortunately, he fell out of favour due to both his direct assault on problems and his personal habits where he was barefooted and argued all the time.
Post-Socratic Thinkers

Plato (424 – 347 BC) was Socrates’ prime student. He believed that knowledge came from the intellect not the senses and founded the theory of ideas. In simple terms this meant there was an eternal form, unchanging and everlasting, and that all earthly things resembled these forms. An act of charity to a poor person was an earthly example of the eternal form of goodness. He also distinguished the appearance of reality from the facts of reality. In his famous simile of the cave, he had people sitting in darkness believing the information they saw from the shadows on the wall. When one person left the cave and saw the reality of the world, he realized that the cave perceptions were flawed. The tragedy, according to Plato, is that when that person returned to the cave, people did not only disbelieve him but beat him for deceiving them. Perhaps this was an early example of the “Tall Poppy Syndrome.” He believed that knowledge was remembering and bringing people to realize that hypotheses explained facts. If they did not, a new hypothesis was needed. He foreshadowed the Christian religion in that he sought truth and moved towards the abstract. Wisdom, to Plato, was the pursuit of the good. His great book, The Republic, has been studied to this day and, in the words of Alfred North Whitehead, is monumental. “Modern philosophy is but a series of footnotes to Plato’s Republic,” Whitehead said. In his book, Plato talked about the need for us to be governed by the Philosopher King and in successive layers by experts. Although he never lived to see his theory of government implemented, he founded the first university called, The Academy. It was ridiculed at the time but it lasted 300 years which is an ambitious period for even Harvard or Yale or the University of Central Queensland.

Aristotle (384 – 322 BC): Plato’s great student, Aristotle, studied under Plato at the age of 20 for 20 years. It is interesting to note that his grades for mathematics were all ‘Cs” and the only “A” he received was for a subject called, Effort. In turn, he founded his university called, The Lyceum, which in principle lasted 2000 years. He tutored Alexander, The Great, traveled widely and investigated everything including Logics, Physics, Biology, Metaphysics, Ethics, Politics and Poetry. He introduced Logic and gave us the Syllogism. In simple language, if A equals B, and B equals C, then A equals C. His work was so influential that 2000 years later Bertrand Russell and Alfred North Whitehead wrote, Principia Mathematica based on the arguments of Aristotle’s logical consistency. He departed from Plato in that he believed Dynamic Becoming was more important than Plato’s Timeless Being. He said of the good that it was virtue derived from finding the mean and that virtue was the correct choice between alternatives. It has been called, “The Golden Mean.” He is regarded as the Father of Scientific Investigation and Commonsense.

Alexandria (322 BC)

This center of learning was founded by Aristotle’s pupil, Alexander, and for 600 years it analyzed moments of discovery.

Galvin developed Anatomy
Euclid developed Geometry
Archimedes developed Physics
Aristarchus proposed the Earth moved around the Sun
Hero invented the steam engine
At the Academy,
Antisthenes argued that it is impossible to make significant statements
Pyrrho made “doubt” itself central
Diogenes was the model of the cynic and to prove his point he masturbated in the public market place.
Epicurus wanted pleasure to be central in all Man’s thinking.
Epictetus thought out the problem of force and introduced stoicism
Philo in 50, AD, turned Plato’s abstracts into God and in 24, AD, Origen turned Plato’s eternal world of ideas into the eternal world of God.
The Christian doctors who followed included Plotinus, Jerome, Gregory and Augustine, They all believed that good and bad were related to God.

Three Important Middle-Age Thinkers
Roger Bacon 1294 believed there were four causes of ignorance.

1. Appeals to an unsuited authority.
2. The unquestioned influence of custom.
3. Crowd opinions
4. Ostentatious displays of wisdom

Dun Scotus (1265 – 1308) in 1308 believed there is no difference between “being” and “essence.” So it is Form not Matter that distinguishes and he added three principles that can be known without proof.

1. Principles known by themselves.
2. Things known by experience.
3. How actions themselves give us knowledge through belief and experience and not by reason, making him one of the forerunners after Aristotle in believing Kant’s Noumenal World.

William of Occam
In 1349, William of Occam proffered his famous condemnation of scholasticism. It became known as Occam’s Razor which was a salute to simple hypotheses. In today’s language he would have said, “It is vain to do with more what can be done with less.” One could say that he was a beginning deconstructionist without jargon.
Science Comes of Age

We have no time to examine their contributions but they are important. Galileo, Kepler, Harvey, Newton, Hobbs, Spinoza and, of course, Renee Descartes who questioned existence but eventually came up with the very famous quote, “Cogito ergo sum.” (I think, therefore I am).

When we reach the 16th Century, we have Vico who stressed the importance of language, myth, law, ritual and history, and, the famous John Locke with his “Tabular Rasa.” (clean slate). This meant there is no inner knowledge only material that has been learned. He was the founder of Empiricism which said the mind is furnished by ideas from experience alone. Berkeley questioned Locke’s ideas and Hume maintained that without sense nothing exists.

Immanuel Kant (1724 – 1804)

Kant was activated by Hume’s deduction that innate ideas gave the base for knowledge and if you do not feel it, see it, touch it, etc., it does not exist. Kant was horrified and came out with his criticism of Hume. Kant believed in the noumenal world which is separate from the rational world. He agreed you cannot reason God, that you believe in him and this belief is a world beyond reason. Hegel (1770 – 1831) followed in the 18th century by saying that nothing is unrelated. His paradigm was in its simplest form:

Thesis --- Antithesis --- Synthesis

There is a thesis and an antithesis and the resulting compromise is a synthesis.

The 19th century saw the rise of a batch of new philosophers intent upon throwing out the old and tentatively exploring a new world. Thus we have Modernism and Postmodernism. Their views were thought of as radical and they certainly changed radically with society. The fall of the aristocracy, the rise of unions, the rush to the towns as a result of enclosures and the industrial revolution that enslaved the commoner in city enclaves rather than pastoral villages added color to their deliberations. Many traditions were thrown out of the window and the concept of eternal truths and simple dichotomies such as good-bad and false-true were rejected. Everything was questioned including meaning, sense and rituals. While it is true that change is necessary and new thinking is important postmodernism set about attacking modernism which, in turn, had attacked traditional thinking and Greek philosophy. The trickle-down effect of this type of thinking infused into education, business practices and the family existence. Reading of the classics, writing in prescribed effective English, exercising to improve specific and general fitness and the concept that sense precedes reason or feeling precedes logic flooded into the various institutions of education. Unfortunately, Aristotelian principles like finding the Golden Mean and Locke’s advice of the importance of commonsense were thrown overboard. Kierkegaard believed that existence was an individual characteristic and not a universal idea. The father of postmodernism, Frederick Nietzsche (1844 – 1900) went further. He believed that in Greek terms the triumph of Apollo over Dionysius and order and form over passion was a disaster. “God is dead.” He considered Kant a moral fanatic, John Stuart Mill a blockhead and Spinoza to be sickly, timid and a recluse. Mind you, exactly the same could be said of him especially when he
introduced the concept of Ubermensch which means superman or super human being, the concept that was seized on by Adolph Hitler in later years. His work was studied by the postmodernists particularly, Sartre, Foucault and Derrida. He believed in the will to live but also in the will to power. All truth is relative and power is good. Nihilism became his guiding philosophy which, in effect, means, “nothing is nothing.” He died, tragically, after eleven years of dementia.

The Influence of the Pragmatists

This group includes Pierce, James, Dewey, Quine and Bergson. They introduced anti-intellectualism which said that scientific analysis does not get to the vital essence of things.

The Cambridge Group

Frege, Russell, Whitehead and the early Wittgenstein simplified mathematics, “deslopped” Pythagoras and consigned Kant to lower ranks. Language was attacked with three groups taking part: first, the Cambridge Group, second the Deconstructionists and third the Marxists.

Modernism

Habermas (1924-1981) of the Frankfurt School introduced Modernism which led to analytic philosophy. He tried to reconstruct rationality in language.

The classic postmodernists were:

(1) Saussure, who thought that language was merely a system of signs that expressed ideas.

(2) Foucault, who recognized that knowledge, truth, power and sex are ideas that can radically change. He eschewed the term, Postmodernist, and introduced a new term called post-structuralism.

(3) Derrida, who exploded the myth that a sign had fixed meaning. Nothing was as solid as the structuralists imagined so he set out to deconstruct their language. He believed in the uneducable excess of language. “All notions of producing philosophical truths are mistaken, misguided and bewildering.” Language with Derrida was full of hidden ogres. He dismissed peculiarities such as cause-effect, truth-falsehood, right-wrong as nonsense, calling them old-fashioned and determined that meaning is imploded. There is, he said, a distinction between signs and reality. It is a sustained argument against the possibility of anything being pure and simple so he equivocates on the existence of finite and infinite. In undermining ordinary meaning and replacing it with meaning derived from hidden factors, he believed he had deconstructed meaning in such a way that exposed falsity. This philosophy has kidnapped central educational curricula in most Australian States in the last 20 years. Cheffers and Hawkins became alarmed when at two recent conferences a presenter from Tasmania described English language in its new term, Thinking, and a young professor from Western Australia seriously advanced a meaning that was in effect, Nothing. This raised the flag of Nietzsche’s, Nihilism and explained much of the recent criticism by the community of a breakdown in the study of English and Mathematics from a philosophic school that
advocated the expulsion of the examination systems resulting from a label known as Outcomes-Based Learning. The cause of this radical change in the approach to education curriculum appears to have originated from a generation of students who studied under Derrida and others at a Sydney university in the late 20th century. Alternative approaches to the practice of education were introduced. Examinations were dispensed with, comparisons of students’ efforts were discouraged, spelling, sentence construction, and basic grammar were reduced to “babble,” Math tumbled down to the slide rule and all attempts to hold students and teachers accountable were abandoned. Frankly, the new tactics employed introduced “bucket loads of slop.” Parents were not properly informed of student progress and the workplace discovered youngsters who could not write, spell or count.

A house auction notice appeared, for example, near my home in Murrumbateman with four words misspelled. Adult education students, when returning for updating workshops were confronted with teachers who apologized for not being able to spell. Politicians in both Federal parties became alarmed and current Minister, Julia Gillard, has introduced radical efforts to return accountability to the teaching of basics in education.

Postmodernist influence, in questioning all meaning, did away with Socratean rigour and Aristotelian reasoning in place of critical theory.

**A Recent Australian Stouch**

A first-class verbal debate occurred in the Higher Education Section of The Australian newspaper on December 3rd, 2008, Page 32. The antagonists were a teacher, Jack Thompson of Balmain, NSW; a unionist, Gary Collins, President of the English Teachers’ Association of Queensland; and Luke Slattery, Higher Education Editor of The Australian newspaper. Thompson, in reacting to criticism, maintained: (1) no two people can or do read the same literary text in exactly the same way. Each brings to the text his or her own ethics, values and political values; (2) cultural backgrounds bring our values on race, sex, and political orientation with biases. He said this brings on “textual undecidability”; (3) the age of completely authoritative reading of literature has passed on, along with believing in the devil. Parroting Shakespeare, one novel and three poems is not studying literature. Parroting back “pot answers” to gain teacher’s consent is not likely to “create a critical population;” (4) we need critical readers.

Gary Collins argued that Slattery is arrogant, represents only the press, is unelected and challenges Slattery’s right to criticize.

Luke Slattery responded: (1) He does not contend with postmodernism but does question whether Thompson is aware “how on the nose postmodernism is in mainstream philosophy.” In support, he cites Harvard Biologist, E. O. Wilson and University of California’s Philosopher, John Searl, who charge that Derrida is a low-level philosopher who is argumentative, deliberately obscurantist and whose claims are wildly exaggerated. (2) He reminds Thompson that his original article, which was the bone of contention, questioned the degree of accountability and transparency in current Australian curriculum policy. (3) He cites the endless jargon used by postmodernists as un-instructive and incoherent. He quotes Thompson’s own words, “textual undecidability” as evidence. (4) He spins the sword back on Thompson by saying that when critical postmodernists “impute conservative motives on
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their critics,” they are guilty of spin themselves. Finally, he lays bare the paradox of critical literacy schools which cannot abide criticism of their own methods as being hypocritical.

Postmodernism Under the Spotlight

Derrida’s critical theory is obscured by confused terminology and pretentious rhetoric. Biologist, Richard Dawkins, is not kind. He believes that postmodernists are intellectual charlatans who deliberately obscure weak or nonsensical ideas with ostentatious and difficult to understand, verbiage.

World renowned linguist Noam Chomsky has suggested that postmodernism is meaningless because it adds nothing to analytical or empirical knowledge. He asks, “What are the principles of their theories; and on what evidence are they based?” What, for instance, do they explain which was not already obvious? “When I ask them to explain their ideas, they fail to do so.” He also questions whether their words come from a “sudden genetic mutation” or “theory which is beyond quantum theory, topology and in-depth profundity.”

Callinicos, a Marxist, attacks postmodernist thinkers saying they reflect “the disappointed revolutionary generation from 1968 as being incorporated into the professional and managerial “new middle class.” It is best to read their political frustration and social mobility as a significant, intellectual phenomenon in its own right. The late Czech Republic President, Vaclav Havel, gave a hopeful description of the postmodern world as one based on science yet paradoxically “where everything is possible and almost nothing is certain.”

In dismissing all forms of absolutism, the postmodernists idolized their new creed of tolerance-diversity-choice. Many people consider their efforts to be a return power play for their own positions.

To the Rescue

One philosopher in this period who has advocated deconstruction is much more of a hero than other postmodernists. I refer to the great Austrian thinker, Ludwig Wittgenstein, who restructures reality after deconstruction in a very positive manner. He believes that all meaning, especially words, need to be broken down to their simplest atomic structures. After his important involvement with Whitehead, Russell and Frege at the turn of the 20th century, he grew to a position that after deconstruction, which they all called Logical Atomism, a new metaphysical position was needed centered around the meaning of the words we use. He concluded that primitive language took the form of language games. In his classic, unfinished text, Philosophical Investigations, he gave a full list of these games. “It includes obeying and giving orders, describing the appearance of objects, giving measurements, constructing an object from a description, reporting an event, speculating about an event, forming and testing a hypothesis, presenting the results of experiments in tables and diagrams, making up stories, acting plays, singing catches, guessing riddles, telling jokes, translating from one language into another, asking, thanking, cursing, greeting and praying.”

He saw great difficulty in our craving for generalities in communication and came to the conclusion that when we see simple language games, like those that children play, we see
activities and reactions which are clear cut and transparent and on which we can build more complicated forms of expression. He maintained that words can only be determined as having meaning if their use is understood.

**In conclusion**

Cheffers and Hawkins posit their conclusions on a difficult but important subject with the following points. Please forgive us.

1. One must read the culture of the postmodern school before adopting it into basic curricula.

2. Their recent debilitating influence on “the Three R’s” has resulted in huge backward steps in general education.

3. Claims that there are no such dichotomies as good-bad, true-false are not true: in fact, their claims are “bullshit.” Elaborate-yes, Intriguing-yes, but basically “bullshit.”

4. We must stand on the shoulders of the tallest people who have gone before, not on the pygmies who do not enable us to see over the edge of the black hole. Whitehead said the meaning of life is “adventure,” so change is inevitable, indeed natural and newness is not all that bad as oldness is not, either. Simply because something is old does not mean that it is irrelevant.

5. The tendency to dismiss established practices in education simply because they are flawed does not mean that they are useless. Learning definitions, reciting times tables and grammatical truths do not have to produce mindless, boring atmospheres but can be fun to learn and helpful in the acquisition of a basic education. In our world, forward rolls are still a universal, happy achievement for every child. When we use punishment at initial failures in teaching these basics we properly invoke the censure of the postmodernists.

6. Competition, evaluation, and comparisons are inevitable, but they do not have to be evil. We learn from mistakes and we quickly realize that some students are better in some areas than others. To deny these truths produces unwanted momenta like “tall poppy syndromes,” inertia and false promise. The best kind of race is when there are six place getters but each produces his or her best time.

7. In education: deconstruction – no

   Multiple interpretations after fresh approaches – yes

   Literacy, numeracy, physical fitness – yes

   Navel gazing, hand wringing, appeasement, false qualities – no
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A Final Thought

He may be archaic, 2500 years out of date, and a hopeless absolutist believing in impossible eternal forms, but perhaps Plato’s words are very true today. In Book 7 of the Republic he says: “Therefore, you best of men (and of course women also) …don’t use force in training the children in studies, but rather play, in that way you can also better discern what each is naturally directed towards.”

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Parent and caregivers perceptions and attitudes towards children’s physical activity and physical education – results of a NZ primary schools physical activity project

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Abstract

The role of parents as a positive influence on children’s attitudes towards, and participation in, physical activity through their support, encouragement, provision of opportunities to participate and through parents’ own involvement in physical activity is well documented. A pilot physical activity project was trialled in 15 primary schools in Christchurch and Auckland, New Zealand, with the aim to increase the quality and quantity of children’s physical activity and physical education. To achieve these objectives physical activity coordinators were assigned to four schools each and lead teachers were identified in each school to undergo a professional development programme to improve their capabilities to develop and implement a quality physical education programme. Part of the evaluation of this project was to investigate parents’ perceptions and attitudes to their children’s involvement in physical activity and physical education and the changes in these perceptions and attitudes as a result of this intervention. A parent and caregivers questionnaire developed by the Australian Council for Health, Physical Education & Recreation was completed on two occasions, at the baseline (term 1, 2003) and post intervention phase (term 4, 2004) of the data collection process and completed by 336 parent/caregivers (73% return rate). Baseline results indicated that parent’s highly valued the place of physical activity in the school environment and the health benefits and social skills that physical activity provides. Respondents indicated that family, the school and enjoyment of the activity were key factors in continued participation in physical activity for children. Barriers to participation were family and work commitments and cost of activities. Analysis of specific groups post intervention indicated an improvement in attitude towards physical education programmes and an increase in the influence of friends (low decile) and role of sports clubs (NZ European) in physical activity participation. These changes post intervention in parents’ perceptions may be reflective of the impact of the physical activity coordinators who endeavoured to improve school and community links and of the professional development for lead teachers.

Keywords: Parents awareness of physical activity, Benefits of physical activity

Introduction

Childhood is a critical time in the development of healthy lifestyle patterns and habits. However, the opportunity for children to participate in physical activity varies greatly and is influenced by a number of factors (Armstrong & Welsman, 1997). The role of parents
as a significant influence on pre-adolescent children’s participation in physical activity is well documented (Brustad, 1996; King, Tergerson & Wilson, 2008; Eriksson, Nordqvist & Rasmussen, 2008). This parental influence can occur through their support and encouragement, the provision of opportunities to participate, and through parents’ own involvement in physical activity.

In New Zealand, the release of the Graham Report (2001) noted concerns about young peoples’ physical activity levels and raised issues about the quality and access to physical education and physical recreation opportunities for young New Zealanders. As a consequence of these findings a pilot primary school physical activity project was initiated.

This pilot physical activity project was established by the Ministry of Education (MOE) and Sport and Recreation New Zealand (SPARC) and involved sixteen schools (one withdrew in the second year) in two regions (Christchurch and Auckland). The pilot was trialled over a two year period with the aim to increase the quality and quantity of children’s physical activity and physical education. To achieve these objectives, physical activity coordinators (PAC’s) were each assigned four geographically-clustered schools. The role of the PAC was to increase the awareness of, and opportunities for, physical activity outside timetabled school time by working with the school, teachers, children and the community. The PAC’s role was envisaged to be the liaison between these groups. Lead teachers were identified in each school to undergo a professional development programme to improve their capabilities to develop and implement a quality physical education programme.

The evaluation of this project also acknowledged the role that parents play in providing physical activity opportunities for children. Parent/caregivers perceptions and attitudes to their children’s involvement in physical activity and physical education were investigated and the changes in these perceptions and attitudes as a result of this intervention were documented and are reported in this article.

Method

Participants and Setting

A random sample of children and their parent/caregivers were selected from a cohort of sixteen schools selected by the Ministry of Education. Eight schools from both Christchurch and Auckland were selected and grouped into area clusters each containing four schools (Christchurch, Lincoln, North Harbour and South Auckland).

Eight children were randomly selected from each of the identified school year level groups. That is, eight children each from Year 1, 3, 5 and 7 in each school. Informed consent was obtained from 457 children and their parent/caregivers to take part in the evaluation process. One school withdrew from the project at the beginning of the second year which decreased the sample size post-intervention. This project also gathered information from 36 lead teachers, 4 PAC’s, 16 principals and Board of Trustee members (BOT) and 124 teachers.

Research Methodology
Key personnel in each of the pilot schools were interviewed throughout the duration of the pilot to identify key learning and success factors that would help inform any planned future rollout of the intervention. Observations of the lead teachers’ physical education lessons and lunchtime physical activity were carried out. The participating children and their parent/caregivers were asked to complete questionnaires about physical activity. In addition children were also required to complete the following evaluation activities: a motor skill survey, heart rate monitoring and a structured interview. Teachers in all the pilot schools completed a survey about the teaching of physical education.

The parent/caregivers questionnaire was developed by the Australian Council for Health, Physical Education & Recreation (ACHPER) and examined parents/caregiver’s attitudes towards, their pre-adolescent child’s involvement in physical activity (Wright, Brown, Muir, Rossi & Zilm, 1999). The parent/caregivers’ of consenting children were asked to complete the questionnaire on two occasions, once in the baseline phase (term 1, 2003) and again in the post intervention phase (term 4, 2004). The questionnaire was sent home with the consented children for the parents to complete. In some situations where two or three children were from the same family only one questionnaire was completed at each phase.

Analysis of Results

The parent/caregivers’ questionnaire were analysed using a repeated measures analysis with a mixed -modelling procedure (Proc Mixed) in the Statistical Analysis System (Version 8.2 SAS Institute, Cary NC). A one -way analysis of variance was used to determine whether there were significant differences between baseline and post-intervention in the various groups (parents’ gender, school decile, ethnicity and school cluster). Data presented are raw frequencies (number of respondents) and percentages of respondents who answered the questions. For some questions respondents were asked to tick more than one response, therefore the percentage indicates the percentage of all parent/caregivers who responded with that particular choice. Any change in responses equal to or above 10% was classified as a substantial difference.

Results

Of the 457 consented children and parent/caregivers (baseline sample), 336 (305 post-intervention sample) parent/caregivers completed the questionnaire giving a 73% return rate. The predominant groups of caregivers completing the questionnaire were; female (267 base, 250 post) NZ European ethnic group (230 base, 224 post) and age group category 3 1- 40 years of age (164 base, 124 post).

Parent/caregivers attitudes and values

The values parent/caregivers placed on their child’s participation in physical activity included the fun and enjoyment their child experiences (93% base, 92 post), the health benefits (60% base, 62%, post) and the social skills they gained, such as co-operation (53% base, 50% post). Parent/caregivers reported a substantial increase post-intervention (33% base, 41% post) on the value they placed on their children making friends through their
participation in physical activity. This increase is also reflected in low decile (30% base, 41% post), Maori (41% base, 58% post), Lincoln (36% base, 48% post) and Christchurch (29% base, 46% post) parent/caregiver responses.

Influences

The two most important influences in children’s participation in physical activity reported by parent/caregivers were the school (82% base, 75% post) and family (81%, base, 73, post). While overall results showed no baseline to post -intervention change analysis of specific groups showed substantial changes. South Auckland (80% base, 64% post) and low decile (84% base, 55% post) parent/caregivers all showed a decrease in the school as an influence on their children’s participation in physical activity. Maori parent/caregivers reported a decrease post-intervention on the influence of and the encouragement from siblings (51% base, 39% post) as important influences in children’s participation in physical activity.

The influence on friends on children’s participation in physical activity was shown to be important for specific groups in particular Maori (35% base, 65% post) and low decile (38% base, 50% post) parent/caregivers who reported a substantial increase post-intervention.

Maori parent/caregivers perceived having access to available facilities (41% base, 63% post) and their child ‘being good at the activity’ (46% base, 58% post) as more of an influence in getting involved in physical activity post intervention. This increased response to the access of facilities post-intervention is reflected by South Auckland (5% base, 16% post) parent/caregivers in the importance of swimming lessons and Lincoln (60% base, 72% post) and North Harbour (37% base, 45% post) and Christchurch (44% base, 51% post) parent/caregivers on the influence of sports clubs in their child’s participation in physical activity.

Barriers

Parent/caregivers perceived that family (33% base, 35% post) and work (34% base, 35% post) commitments and the cost of the activities (32% base, 32% post) were key factors working against their child’s participation in physical activity.

Cost was a major barrier for children’s participation in physical activity and after the intervention this presented even higher concerns for low decile (33% base, 52% post) Maori (31% base, 43% post) and South Auckland (31%, 51%) parent/caregivers. Similarly, parent/caregivers from low decile families showed heightened concern post-intervention over the availability of suitable transport (17% base, 30% post) for low decile families.

School Physical Activity and Physical Education

The majority of parent/caregivers perceived that their children participated in, and enjoyed physical education (88% base, 90% post) and sport (89% base, 90% post) at school. This positive attitude to school physical activity was perceived by the parents post-intervention to be due to the physical education programme (43% base, 51% post), the
physical education teachers (41% baseline, 49 % post-intervention) and policies (39% baseline, 45% post -intervention) in their children’s school.

The increase in the enjoyment and attitudes towards school physical education programmes post-intervention was more pronounced in the South Auckland (41% base, 65% post) cluster and low decile (40% base, 61% post) parent caregivers. High decile (40% base, 50% post), NZ European (38% base, 51% post) and North Harbour (30% base, 48% post) cluster, reported that their child’s attitude has been enhanced by the physical education teachers.

Discussion

Changes in parent/caregiver’s perceptions of their children’s attitudes and participation in physical activity and physical education, along with their own attitudes as a result of the project identify some of the success factors of this intervention.

Cost and access to physical activity opportunities outside the school environment have always been a concern and this still remains a major barrier for parent/caregivers in low decile schools. As part of the project physical activity co-ordinators (PAC) had a role in trying to minimise these barriers towards physical activity participation. This role included working with the local community to open up access to facilities and resources and to create more opportunities for children to be active within the school environment, but outside timetabled curriculum time (e.g. lunchtime, morning interval), and after school. Introducing new physical activity opportunities to children may have increased parent/caregivers awareness (in low decile school areas at least) of the importance of cost and the problems of transport to and from such physical activities.

Maori and South Auckland parent/caregivers reported an increase in the availability of facilities for their children’s participation in physical activity, including swimming. The PAC responsible for the South Auckland cluster accessed funding to re-open one school’s swimming pool and the local council offered free access to local pools for those schools without a pool. Other strategies implemented by this PAC included applying for grants for playtime equipment and the setting up of systems for storage and distribution of equipment during lunchtime and other breaks. One such system was the introduction of a physical activity council (older children in the school) whose role was to take responsibility for distributing equipment and also to organising games and physical activities during the lunchtime. One of these activities was leading a ‘Jump Jam Session in the hall during lunchtime. These activities undertaken during school time, but outside timetabled time, provided easy and available access to physical activities with no cost to parent/caregivers or transport concerns.

Parent/caregivers perceptions of the influence of sports clubs in encouraging children to be physically active in creased substantially post -intervention. Such a positive change was probably due to the PACs’ introducing regular newsletters that went home to all parents informing parents of community events, contacts, resources available as well as advice on how to increase their children’s physical activity. An example of one of the initiatives
communicated to the parents was the YMCA’s Push Play initiative, which involved the children getting more active with their families outside the school environment.

There was a substantial increase reported by parent/caregivers (Maori and low decile) on the influence of friends and a decrease on the influence of siblings in their child’s participation in physical activity. Children’s initial involvement in physical activities has primarily been influenced by the physical activity interests of family (King et al, 2008). As a result of this intervention the making of friends and participating in physical activities with friends has increased and is seen as an important influence in children’s enjoyment of and participation in physical activity. Possible reasons for the increase in the role of friends as part of the intervention could be the strategies implemented by the PAC’s who have increased physical activity opportunities within the school during lunchtime and provided access to physical activity facilities in the community after school and in the week end with very little or no cost thereby giving more opportunities to be active with friends. Previous research indicates friends play more of an influence in the participation of physical activity as children move through puberty into adolescence (King et al, 2008).

Low decile, Maori and South Auckland parent/caregivers reported an increase in their child’s enjoyment of physical education as a result of the schools physical education pilot programme. While parents from high decile, NZ European and North Harbour groups perceived that their children’s attitudes towards physical education have improved due to the schools’ physical education teachers. This may be reflective of the impact of the professional development programme in improving the quality and quantity of the physical education programme. Results from the teacher survey indicated that there was an overall increase in the amount of timetabled time devoted to physical activity curriculum subjects post-intervention. Teachers also reported an increase in confidence and competence in teaching physical activity. Such perceived changes could be a result of physical education being delivered more often or longer with different approaches and movement contexts offered.

Changes in parent/caregivers perceptions and attitudes toward their child’s participation in physical activity as a result of this intervention indicated two key success factors. The first is the role of the physical activity co-ordinator in providing physical activity opportunities outside timetabled school time and the second is the professional development programme provided for the lead teachers and teachers in the pilot schools which probably led to the increased quantity and quality of physical education programmes.

The two agencies (MOE & SPARC) responsible for this project have recognised these success factors and in the years subsequent to the completion of this pilot have provided opportunities for NZ primary schools to access physical education professional development and active school advisers (similar to the PAC) to support and enhance physical activity programmes in their schools.

**References**


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Rural education matters: Access to opportunities to learn in physical education and school sports in rural Solomon Islands schools

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Abstract

Rural students often have less access to opportunities to learn in many parts of the world. Over 70% of the world’s 1.2 billion poorest people live in rural areas and 85% per cent of them in various countries of Africa, Asia and Latin America (UNESCOa, 2004). Pacific Island countries also have rural populations with their own challenges. This means all Pacific Islanders have a stake in the well being of rural Pacific. The variables of being small, scattered, isolated, and sparse are common features interacting uniquely to make rural Pacific. This study was done in Choiseul Island, in rural Solomon Islands, on the Opportunity to Learn (OTL) physical education in schools. OTL provides the framework to discuss curriculum, staff, instructional equipment, facilities and resources, policy implementation, and community support in relation to physical education.

Keywords: Opportunity to learn (OTL), Solomon Islands, Rural education

Introduction

Rural research, particularly rural educational research, is undertaken by comparatively few scholars (Stern, 1994). Little has been written about the particular problems facing physical educators who teach in rural settings. The condition of rural education research, as a result, is poor. Consequently, making informed and reliable interventions to unique, rural challenges difficult (Lackey, 1993; Arnold, Newman, Gaddy, and Dean, 2005). There is also a scarcity of research in rural physical education in the Solomon Islands. In 1939, Groves had emphasised then that village schools in the Solomon Islands should organise games such as chase-ball, twos and threes, rats and rabbits, and fox and geese, relay races, canoe-team, and folk dancing. He encouraged teachers to be prepared to take physical activities for children in rural schools (Groves, 1939). While Groves stressed this more than six decades ago, the depth of learning opportunities that children in remote locations experience in school PE and school sport in the Solomon Islands remains an area that is neglected in research.

Investigations into rural issues are vital since the majority of Pacific Islanders still live in rural situations. About 90% of Solomon Islanders live in rural areas and even in comparatively urbanised Fiji, only about 39% of the population live in towns and cities (Hallein, 1992). Solomon Islands then has the most people living in rural situations in the Pacific Islands (ESCAP, 2004). Globally, about 3 billion people live in rural communities,
mainly in countries with low per capita incomes and high rates of poverty. 130 million children are not in school; most are rural. In addition, dropout rates from rural primary schools remain unacceptably high (UNESCO, 2003).

There is lack of a common, consistent, and explicit definition of “rural” (Baills and Rossi, 2001; Arnold, Newman, Gaddy, and Dean, 2005). DeYoung (2002) expressed that there can be three types of rural communities; small communities in metropolitan fringes, stable agricultural and mining communities, and economically or geographically isolated communities far from metro areas. Baills and Rossi (2001) noted that definitions of ‘rural’, ‘isolated’ and ‘rurally isolated’ based on demographic data alone tend to falter and the definitions differ according to the agencies seeking to use such definitions. This can be a reason why definitions of ‘rural’, ‘remote’, and ‘isolated’ can be varied, depending on the agencies that want to use the definition.

Stern (1994, p. 4) defined ‘rural’ as ‘a residual category of places outside urbanized areas in open country, or in communities with less than 2,500 inhabitants, or where the population density is less than 1,000 inhabitants per square mile’. Another term needing explanation is ‘isolation’, which usually reflects geographical factors such as distance from urban centre, school location, unacceptable travel time, unusual weather conditions, or even mountains, rivers or other intervening geographical features. ‘Remoteness’ is most frequently gauged by distance; distance from the nearest service centre or population density (Witham, 1993). Thus, the definitions of rural, remoteness, and isolation given here depicted images opposite to urban, low population density, difficult topography, geographic location, and distance.

It is evident that geographic isolation and remoteness poses unique set of challenges to rural schools (Arnold, Newman, Gaddy, and Dean, 2005). In America, teachers and principals in rural schools, are generally younger, are less educated, and receive lower pay and benefits than their non-rural counterparts. About 6.9 million students attend some 22,400 rural schools, where in 1986, one of every four children in rural America was living in poverty. Rural schools in America serve over 40% of the nation’s students, but do not receive this much federal education funding (Bouck, 2004). Furthermore, rural schools are often confronted by a school curricula with an urban orientation (Stern, 1994).

Students in rural schools generally do less well than their metropolitan peers or than the student population as a whole (Craig, 1994). When budget cuts occur for schools in the rural, sport for lower grades are most likely to be cut (Morton, 1995). A study in rural Indiana, United States, showed ten percent of children skip breakfast and over half eat snacks with empty calories (Misra and Aguillon, 1999). Television-watching is also an impediment to physical activity participation in rural America (Pate, Trost, Felton, Ward, Dowda, and Saunders, 1997). There are multiple challenges to students of rural America.

There are challenges also for rural schools of other parts of the world. Many rural schools in England, Scotland, and Wales, are small and quite a number had single teachers. These single teachers manage all aspects of the school without additional compensation. In addition to regular instruction, teachers perform administrative duties, visit parents, performed custodial duties, and taught remedial reading, special education, computers,
physical education, art, and music (Muse, Hite, and Powley, 1997). Rural schools are often economically disadvantaged and are not immune to the political postures of the country. For example, rural areas in Colombia, as in many countries of Latin America, are educationally and economically disadvantaged. There had been extraordinary rural neglect and disadvantage, but all of a sudden there would be suggestions for dramatic change in rural school reforms. The government often uses rural education policies as a means of ‘rural pacification’ and ‘rural incorporation’, thereby helping to control the rural populace and the Colombian violent political scenario (McEwan and Benveniste, 2001). Too often the rural populace is used for certain political and urban agendas.

The Pacific Islands also have a variety of rural challenges. A difficulty in the professional support of Fiji’s rural and outer islands schools is the infrequency of visits by educational advisors (Baba, 1985). Multi-grade and multilevel instruction is needed in many rural pacific islands schools because very few are large enough to stream pupils of equal ability. Further, educators throughout the Pacific region see the lack of educational resources as a major educational problem (Hallein, 1992). The Pacific Region Educational Laboratory (PREL) studied 230 elementary and secondary schools in American associated countries of American Samoa, Northern Mariana, Marshall Islands, Palau, and Federated States of Micronesia, and found that remote and isolated schools have less instructional equipment, have fewer student services, and less likely to implement testing and language policies (PREL, 1995). Furthermore, recreational facilities are limited in rural communities (Plotnikoff, Bercovitze, and Loucaides, 2004).

Despite these challenges, there are positive elements of rural education. Schools in rural Northern Pacific Islands have lower student-teacher ratio, and have relatively strong community support (PREL, 1995). Children in villages more often played outside and visited friends’ homes to play than city children (Van den Berg, 1997) and record higher leisure satisfaction than urban adolescents (Francis, 1999). Moreover, a study conducted by Louie and Chan (2003) in Hong Kong revealed that rural schools emphasised outdoor play more than urban schools. However, in a study of 2,697 high school students in rural and urban schools of Canada, the prevalence of physical activity was similar between rural and urban schools (Plotnikoff, Bercovitze, and Loucaides, 2004).

The number of disruptive students and the frequency and intensity of disruptions are less frequent in rural schools than in urban schools (Ennis and Chen, 1995). In rural American schools, community pride was often infused into sports programs, and basketball or football teams became and remain cornerstones in community identity (DeYoung, 2002). This is important because rural citizens should take pride in their school. Small, isolated rural schools should not be seen as limited in their capacity to implement comprehensive changes in teaching methods and innovative curricula programs. Distance from urban areas should not be seen as a barrier in providing training and consultant services needed for the support and implementation of new instructional programs (Carlson, 2000). Tracking 1,111 rural and urban schools in Kentucky, Reeves and Bylund (2005) deduced that rural schools are capable of achieving sustained academic improvement and can better their urban counterparts. Thus, it is imperative that rural schools are supported in new and additional ways so that students from these areas become productive members of an ever-changing complex society (Bouck, 2004). Sustainable rural communities are a part of the alternative future. If rural schools are
to contribute to community development, they must reconsider the purposes of schooling, shift the focus of curriculum to the local community context, providing students with the skills to create their own jobs, and maximise benefits to the community from investments in educational facilities and resources (Nachtigal, 1994).

Rural schools are important institutions and should feature in development policies of the Pacific Island countries. Not only that, teacher education, both pre-service and in-service, should equip prospective teachers for rural service (Singh, 1986). Much tertiary or higher education has failed to adjust to new needs in rural development (UNESCO, 2003b). The development of a rural-responsive professional development for teachers is paramount because it is a largely unaddressed challenge (Howley and Howley, 2005). Equal opportunity administrators must see ‘ruralness’ as an area of special attention (Craig, 1994), because serving the educational needs of scattered island communities in the Pacific Islands and providing support for teachers and administrators who work in isolated situations has received relatively little attention internationally. Only by understanding the specific circumstances of Pacific Islands teachers can realistic strategies be defined to meet their professional needs (Weeks, 1994).

The current Government in Solomon Islands advocates a rural development focus (PFNeta, 2006). This has affected the priorities of the Choiseul Provincial government as well. The Choiseul Province premier, like other provinces, recently stressed that the province’s budget is rural based, especially in agricultural development (PFNetb, 2006). This is an important policy shift but real impact felt at grassroots level must be ensured. It should be reflected by healthy rural budgetary spending and commitment, than merely at policy level. Therefore, uncovering the specific circumstances of rural teachers and schools will allow appropriate strategies be formed. These will provide valuable impetus and pertinence to understanding of rural physical education, school sport, and circumstances, in rural Solomon Islands.

Therefore, these questions are important:

- What is the extent of the Opportunity to Learn (OTL) in physical education and school sports for rural students in the Solomon Islands?
- What peculiarities hinder or advance rural physical education and school sport?
- What implications are there for policy formulation and action in the area of physical education and school sport for policy makers, curriculum developers, teacher educators, and the community?

Conceptual Framework

In this study, Opportunity to Learn (OTL) will provide the conceptual framework for organising five factors that affect student learning in physical education and sport: staff, curriculum, instructional equipment, facilities and resources, policy implementation, and community support. Opportunity to Learn refers to equitable conditions within the school that promote learning for all students (NCREL, 2006). OTL was first used in the early 60s as a method to see the relative student exposure to content that was assessed in large
international testing research (Reichardt, 2002). In the mid 1980s, however, researchers and policymakers became interested in including classroom processes such as teacher background, school organisation, course offerings, curriculum materials, and instructional strategies. These new data provided a more complete picture of schools and the schooling process, enabling policymakers to compare schooling conditions in different areas (PREL, 1995). In the 1990s, OTL was expanded to include the creation of OTL standards that could be implemented in support of content standards. Together OTL standards and content standards were intended to guide both the processes and outcomes of schooling (Reichardt, 2002). Therefore, Arnold, Newman, Gaddy, and Dean (2005), after scrutinizing the condition of rural education research, crafted nine areas that should be looked into in future research. One of these was ‘Opportunity to Learn’.

Research Site

The research site is Choiseul Island, one of the nine provinces of the Solomon Islands. It has a population of about 20,000 people accounting for 7.5 percent of the country’s total population, and one of the most sparsely populated provinces at 5 persons per square kilometre. Choiseul has a primary school enrolment of 3,359, 154 teachers, and a 1:21 teacher/pupil ratio (Rural Development Division, 2001). It has 8 high schools, about 35-40 teachers and 2,000 students (Rural Development Division, 2001; S.I.G., 2005). Even though remote, Choiseul has a higher literacy rate of 73% than the national average at 65% (Rural Development Division, 2001).

This site is suitable because Choiseul is one of the furthest provinces from Honiara, the capital. Moreover, a site in Solomon Islands is chosen because it has the largest percentage of rural population in all of the Pacific Island countries, with an urban population of only 10 to 15 % (ESCAP, 2004).
Map of Choiseul Island. The research site was between Taro and Sasamuqa.

Maps from www.peoplefirst.net.sb

Methodology

This inquiry was an ‘Evaluative Research’, where systematic methods were used to collect and analyse data regarding the effectiveness of an educational experience (Verma and Mallick, 1999), in this case, on physical education. How effective rural, remote students have access to OTL in physical education and school sport was evaluated.

Interviews

An ‘Informal conversational interview’ (Patton, 1990) was used. A major question asking what the situation of physical education is at the participant’s school was asked and flexibility was maintained to pursue information in whatever direction appears to be appropriate, depending on what emerges from the conversation. Pidjin, the lingua franca of Solomon Islands, was used to interview participants. This was done to allow interviewees to express themselves well. It was school holidays therefore only three participants were interviewed in their classrooms, the rest were done at participants’ villages or other locations where the researcher met them, either underneath trees, a nearby shed or at the beach.

Field notes

Field notes were recorded mechanically during the period of the fieldwork. The field notes included:
• Verbal descriptions of the setting, the people, the activities
• Direct quotations or at least the substance of what people said
• Observer comments. These comments were over and above factual descriptions, put in the margins, underlined, or commentary at the end of the day.

(Merriam, 1998)

Sample

There were thirteen (13) interviewees. Eleven (11) were schoolteachers, a provincial sports coordinator, and a curriculum developer. Of the schoolteachers, three (3) were high school and eight (8) primary school teachers. These teachers are from eight (8) schools. Three (3) of the schools are secondary and five (5) primary schools. Snowball sampling (Lodico, Spaulding, and Voegtle, 2006) was employed to sample participants. This meant asking initial participants to refer others with similar characteristics. All of these teachers and individuals have strong interests in sport. One, for example, was a regular provincial representative in soccer for many years, another is a current Netball provincial representative, and another is vibrant in organising boxing, a sport Choiseul does well in.

Two of the secondary schools are boarding premises while the rest are day schools located in villages, within walking distances for students. All participants are based in Choiseul except for the curriculum developer who works at Honiara. Formal permission was received from the Education Office and signed consent was taken from each of the participants. All of the Choiseul participants, except for the curriculum developer, taught at schools within the same political constituency.

Data Analysis

Three processes were taken to analyse data collected from the interviews and field notes: open, axial, and selective coding (O’Donoghue, 2007). Open coding aims to express data in the form of concepts (Flick, 2002). This is an example of an open coded paragraph from an interview:

<table>
<thead>
<tr>
<th>Interview transcript</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honestly, for us at --- primary school, for PE, I think, we do not take it. What I know about PE is that it should be a class taken by itself outdoors. For sports, we have sport for the whole school, from preparatory to class six. We would go out to have sport. But this depends on the condition of the field, because the province looks after it. But for PE, I cannot deny, we do not take it at all. [TC1]</td>
<td><em>Emphasising truth;</em>&lt;br&gt;<em>PE non-existent;</em>&lt;br&gt;<em>Understanding of PE;</em>&lt;br&gt;<em>Intramural sport taken;</em>&lt;br&gt;<em>Outdoor sports;</em>&lt;br&gt;<em>Dependent facility use;</em>&lt;br&gt;<em>PE non-existent emphasised.</em></td>
</tr>
</tbody>
</table>
Then, these open coded materials were differentiated into categories (Flick, 2002) using the OTL framework (PREL, 1995) of staff, curriculum, instructional equipment, facilities and resources, policy implementation, and community support. An ‘outlier’ category was created (Evans, 2002) to include cases that do not conform to any of the patterns. With deeper analysis during selective coding (Flick, 2002), ‘outliers’ were included eventually to the major categories. In selective coding, issues within categories were elaborated upon and integrated, validating relationships. Exploratory diagrams and maps were often used at this stage (McMillan and Schumacher, 1997). Some sub-categories were also refined and moved to other categories as seen fit.

**Discussions**

**Staff**

There is an enormous sense of staff development neglect by teachers of Choiseul, not only in areas concerning physical education, but in general as a whole. There is an overwhelming hunger for revitalisation. These rural teachers are absolutely salient to the development of Choiseul and the Solomon Islands and must not be left to this feeling of helplessness and to a certain extent, suppression. Weeks (1994) stated that rural pacific island teachers play an important role and should be accorded genuine appreciation and continued professional support and empathy to their signals for help. The study could feel a sense of helplessness among teachers created by their isolation, therefore, our concern, is to see, collaboratively, that these teachers feel supported, confident, and competent in their rural work environment.

Long-term study awards are expensive and they need systematic support on this. Moreover, remote teachers in Choiseul noted the lack of workshops or conferences for teachers to continually be engaged in and developed professionally:

“It’s over ten years since we had any workshop for teachers. Absolutely none. I think it’s not the governments’ problem but the province’s problem for always blaming the government for lack of finances” (TC9)

Similarly, in the Fiji context, Baba (1985) stressed that given the remoteness of rural schools teachers must be supported professionally. Weeks (1994) also reinforced the importance of providing support for pacific island teachers who work in isolated situations and it is through understanding of these practitioners’ circumstances, can realistic strategies be designed to meet their professional needs. Another issue echoed by respondents was a need for the establishment of a Choiseul Teachers Association to push teachers’ issues in the province.

At school level, all primary schools in the sample, with the exception of one, have three or four teachers. This means that teachers would take two to three classes in multi-class teaching situations. This was a reason given that may further strain the delivery of PE, if it was to be revitalised:
Rural on matters: access to opportunities to learn in physical education and school sports

“What is happening is that, we the staff, we teach two or three classes and so by the time we took other subjects, time for physical education becomes none. Because we have to run to one class and run to another....” (TC7)

Multi-grade and multilevel instruction is needed in many pacific islands rural schools because they are not large enough to stream pupils of equal ability (Hallein, 1992). These multi-grade schools are often the choice for low and scattered populations, with 30 per cent of classrooms worldwide operating in this fashion, and it should not be seen as a second-class solution (UNESCO, 2004). On the other hand, Lingam (2001) argued in the Fiji situation, that it would not necessarily be an advantage because of the two or more of the number of classes combined, and that teacher education does not respond to this reality. Multilevel teaching can be like playing two games of table tennis on the same table.

There is critical shortage of staff in secondary schools. As a result, there is a high subject-teacher mismatch. Teachers who were not trained for science, for example, would be teaching it. It was felt that such shortages and mismatches would have implications for the delivery of PE in the future. Secondary schools are being established in quick intervals to enable greater access, but the number of teachers did not increase at the same rate. Consequently, quantity is traded for quality. Talking about this issue one of the participants emphasised that:

“We greatly compromise quality. It’s good to have classrooms but if we do not have anything worthwhile to offer, it’s of no use” (TC6).

The same sentiments were made by Yoo and Kim (2005) in a Korean research, where they noted that Korea was successful in expanding the quantity of education, but failed to enhance the overall quality of school education. Furthermore, quality issues increase when these staff shortages result in schools recruiting untrained teachers:

“We have a problem with no teachers. I have the same problem last year. But we recruited form five and six students to come and take some subjects” (TC10)

With increasing student enrolments this staff shortage will be further aggravated. Choiseul, with a population growth of 3 per cent, above the 2.8 per cent Solomon Islands national average (SIG, 1999), the student enrolments will continue to increase, as such, workable solutions needs to be in place. Worldwide, 30 million teachers are needed if Education for All (EFA) is to be achieved by 2015 (UNESCO, 2005). The number of qualified teachers must correlate increasing pupil enrolments so that quality does not become the hostage of quantity. The Solomon Islands Minister for Education acknowledged that the high rate of population increase and shortage of teachers are challenges to realising international ‘Education for All’ and Millenium Development Goals in the Solomon Islands (SIBC, 2007).

Curriculum

Glaringly, there is no physical education in all of the schools surveyed. This was contrary to what Dorovolomo (2003) found that 75% of teachers of primary schools in rural Choiseul, Solomon Islands, taught physical education (PE). The use and quality of
questionnaire in that study must have elevated the results. The face to face interviews and field visits in this study has revealed a disturbing reality for PE in rural Choiseul and the common scenario in pacific island countries (Australian Sports Commission, 2004). Globally, there are countries with properly implemented programs, but physical education is also under threat and suffers low status in many others (Kluka, 2004; Zeigler, 1999).

Most of the teachers in this study, however, have strong interests in physical education but are not teaching it. Coulon and Reif (1994) also found this after a survey of a rural school district, that teachers regarded PE as important but are not implementing it and if they do, inadequately. Furthermore, participants understood the difference between PE and sport, and saw its importance. They identified the importance of early skill development, its health imperatives, the sheer fun and enjoyment, and providing a break from monotony in supporting cognitive ability. Physical education is unique to the school curriculum providing students opportunities to learn motor skills and other benefits such as fitness, social skills, and instilling a healthy and active lifestyle (Barton, Fordyce and Kirby, 1999).

In addition, teachers stressed that physical education had been taught well previously than at present. It was stronger when a PE syllabus was introduced in the late eighties and had declined to none since then:

“Teaching PE was done well before, but it is now like just sport, like Soccer” (TC7)

The reasons for the very poor status of PE are multiple. Teachers cited lack of content knowledge; an outdated curriculum; lack of equipment and resources; a congested national curricula; multi-class teaching; lack of support from the ministry of education, province, sports federations, and school administrators; and teacher neglect.

Apart from all these reasons, the study is strongly convinced that one of the most revealing reasons for the neglect of physical education is that it is not an examination subject in nationwide exams. PE is seen as wasting time that could be used for subjects that will undergo nationwide exams. We may spend lots of money in curriculum revision, equipment, and directives but if the subject is not going to feature in “exams that matter” teachers will always relegate it to the bottom of their list. Teachers’ productivity is often judged by how well nationwide exams are passed. School administrators, authorities, parents, the community, and the ministry of education watch teachers for exam results. Thus, teachers focus solely on exam subjects:

“For teachers, it is like this, we see PE as not coming in exams, in final exams, so we base more on subjects that will come in exams” (TC8)

If all of a sudden, for illustration purposes, it is enacted that social studies should not be examined nationwide anymore, no matter what those who operate on that field do, the significance of the subject would dwindle. This simply is because it is not going to count in the academic advancement of students measured through high stakes exams. At the moment PE has this status in Solomon Islands and is the story throughout Pacific Islands. It is only in Kiribati and Franchophone schools in Vanuatu that PE is examinable at form three and four respectively (Australian Sports Commission, 2004).
The Solomon Islands Curriculum Development Centre (CDC) has revised a PE syllabus and will be on trial in ten (10) schools, covering all the provinces. The CDC proposed that traditional academic subjects such as mathematics and English should be given time cuts, to give physical education and other subjects a better share for time. Physical education, in this revision, falls under ‘personal development’ subjects, which also included creative arts, Christian education, and health education. The CDC realises the importance of PE being in nationwide exams. This is a positive move to the progress of PE in the country. It must be a combination of traditional and authentic assessment (Graham et al, 2004). PE will need to be integrated more fully into national school assessment and evaluation policies (Barroso et al, 2005).

Sports exist in most schools because it is treated as an extra-curricula activity, done after scheduled classes. Intramural sport included soccer, netball, volleyball, and to some extent athletics. High school inter-school sports in Choiseul were funded by the European Union and Ausaid in 2004 and 2005 where the winner competes in the high school national soccer championship. Within Choiseul Province, high school students gather at the provincial capital of Taro to compete in soccer, netball, volleyball, and athletics. The sustainability of such donor funded activities is problematic because since then continuation to 2006 and 2007 did not occur. Claudette (1995) stressed the value of rural schools and authorities needing to be creative to ensure extracurricular activities continue when there are funding cuts. The province needs to have a plan to sustain donor- supported activities.

Participants felt that teacher education they received was general and did not really infuse anything specifically rural in their preparation for service. A participant said that:

"Teacher preparation did not prepare students to actually teach in rural situations. It is just general. ….making it actually applied is lacking" (TC11)

A Solomon Islands school system being very anti-rural, students are lured to towns (Maine, 2007) similarly teacher education institutions are equally anti-rural in their offerings. Physical education teacher education (PETE) and teacher education in general must be rural-responsive. This is crucial because the majority of pacific islanders live in rural situations (Hallein, 1992) with Solomon Islands having the largest percentage of its people living in rural areas at about 90% (ESCAP, 2004). UNESCO (2003b) noted that much of tertiary education has failed to adjust to new needs in rural development. In Fiji, (Singh, 1986) recognised that teacher education can make a lot of difference in the quality of education in rural schools by being responsive to rural needs. The development of rural-responsive pre-service preparation and professional development needs to be funded well and not left to chance (Howley and Howly, 2005).

Instructional Equipment

Basic equipment only for popularly played sport in Choiseul, of soccer, netball and volleyball, are normally acquired by schools. Schools usually finance it themselves but indicated that the education and provincial offices should do more to support them in this sense. This is paramount because participants saw sustained equipment supply as an essential element to the delivery and development of sport and physical education:
“Our problem is providing the equipment, balls and other things like that. But we play soccer, netball, and volleyball as well. We want to try..... playing badminton. I have two rackets but no nets and the other thing” (TC10)

Not only that, these schools are mostly located in communities and there is common school-community sharing of sport equipment. Sport equipment assistance will travel further than the schools right to the community. In a study of 230 schools in American Samoa, Northern Mariana Islands, Marshall Islands, Palau, and the Federated States of America, instructional equipment were less in remote schools (PREL, 1995). PE being very practical-based, is finance intensive, therefore adequate funds should be provided on a continual basis for the purchase of equipment and supplies for the effective implementation of the subject (Owolabi and Sewane, 2003).

Facilities and Resources

Schools lack PE curriculum materials and books. There are often odd books on physical education in the school library. Some of the primary schools have unused PE syllabi and secondary schools do not have one at all. Educators throughout the pacific region see the lack of educational resources as a major education problem (Hallein, 1992). Rural schools face significant resource limitations, particularly in terms of economic and human resources (Arnold et al, 2005).

Each school has field space for outdoor sport, mostly shared with the surrounding community. Sufficient investment into rural, community schools must not be taken lightly by provinces and the Solomon Islands government, if sustainable rural communities should be part of the alternative future. PE and sports represent just one area in need of prioritisation. Other areas also need to be developed so that rural schools can function as resource hubs for community development, supporting economic development directly and indirectly, and make real contributions to the physical and cultural health of communities (DeYoung, 2002; Nachtigal, 1994). Education must be the foundation of rural advancement:

“Education is the most important resource. Education should be driving us towards these directions” (TC6)

We must see rural teachers as valuable arms of society to help us reach the community. Rural schools can be bolstered as players in community development. Investment into rural schools’ PE and sporting facilities, resources and other fundamental community needs, is vital in successfully engaging schools in rural development. Education is the necessary precondition and the primary enabling strategy for the other strategies that we may have.

Policy Implementation

An important issue emphasised by teachers was a lack of a firm ministry of education policy on physical education. Without a firm policy and diligent enactment by the government through its ministry of education, it is not surprising that physical education at school level has all but vanished. With the Solomon Island government’s bottom up approach and a rural focus (PFNeta, 2006), the chapter advises that rural development
policies must enrich and involve rural schools. Nachtigal (1994) resolved that involving rural schools in community development represents the best school reform. This rural-focused policy must not be in rhetoric, but has to seen to have real impact in rural communities. It must be understood that healthy urban communities exist only if there are healthy rural communities, vice versa.

The provincial education office and Choiseul Province can play an important role in advocating for increased status of physical education. Choiseul Province has done well to establish a Sports Office. However, it was seen to require a policy framework that would govern it more securely and effectively in the provincial system:

“We want to set up a policy this year, because a policy set up for the province is not there. There is not a set plan. I mean, some sort of plan, that plans for the future” (PC12)

The right policies, resources and community support have to be in place (UNESCO, 2003), ensuring that rural children do not get a rough deal when it comes to educational opportunities and provision, including PE. The creation, enforcement and sustained follow up of a PE policy should first of all be the responsibility of the Government and Ministry of Education (Owolabi and Sewane, 2003). It is equally important that a stakeholder approach is used to ensure that all relevant groups are involved in its development and implementation. If Solomon Islands is serious about this, especially with physical education, new and imaginative policies based on substantial research into rural issues is needed.

Community Support

Generally, the community is supportive of sport and share sport equipment and facilities with the school. They celebrate when the school team succeeds in competitions. Extracurricular activities are an important of students’ lives in rural schools (Claudette, 1995). These rural, community schools can be a source of community identity as they rally around the school team playing and a source of community entertainment (Deyoung, 2002; Nachtigal, 1994). The family, church, and the school have been integral parts of rural villages and communities in Choiseul. The church, though, is often prioritised more than the school. A participant said that:

“What is happening is that they seem to ignore the school. The church is what they put first. So sometimes we row over this. I mean, we talk about it. Sometimes they put the school not as important as church” (TC7)

These two vital institutions need to be seen more balanced by the community. The social, physical and spiritual aspects of community advancement need balance. Many parents, despite being supportive of sport, are not so keen on physical education being taken, when pupils should be indoors doing studies. They would say:

“What are they going out in the sun to play for? It’s school time!” (TC2)

Because PE is not going to be examinable nationwide parents too are seeing that it is not necessary, more like the way many teachers are perceiving it as well. In a study by Liang
et al, 2005 in rural China, a large majority of parents at 80 per cent, did not believe there was a need for physical education. Parents felt that academic achievement was more important than physical education. Sport, in the contrary, is acceptable because it happens after school. If sport occurs during scheduled class, education authorities also come out to say that it should not:

"We have school sport every Friday and when we put it inside the timetable, the bosses would come and tell us that it is extracurricular so it must occur after official hour" (TC1)

A shift in mindset is required across the board, so that PE and school sport are seen as productive educational experiences than a squander of time. For the sound implementation of physical education, teachers need support from within the school, community, school boards, provincial government, curriculum developers, and special interest groups (Fraser-Thomas, 2002).

Recommendations

Therefore, to maximise Opportunity to Learn (OTL) for students of rural schools in the Solomon Islands the following are recommended:

- Government to enact an enforceable PE policy supported by an ongoing follow-up mechanism;
- Rural physical education and school sport need dependable long-term support financially, on physical and human resources, and continued professional staff development;
- Physical education should be made an examination subject nationwide on par with other subjects as English or social studies;
- Regular in-service courses and workshops in PE and sport should be organised for teachers to enable capacity building and as a result, the sustainability aspects of the subject; and,
- Redesigning teacher education that encompasses changing rural needs including physical education and school sport.

Conclusion

Lack of opportunities to learn (OTL) or access to quality education is not a new issue in rural development, but often consistently neglected. Quality and appropriate rural education lies at the heart of rural development, and rural schools are pivotal to this, imperative to notions such as poverty alleviation and equitable education for all. Furthermore, it should be noteworthy that there is no quality education without physical education. Physical education has dwindled to extinction in rural Choiseul and possibly the same goes for rural Solomon Islands. It has to start with the political will to meet the needs of
rural children for physical education and sport, activating relevant stakeholders. Failing to do so entails breaching the 1978 UNESCO Charter, which enshrined physical education as a basic human right (International Council of Sport Science and Physical Education, 1999). Rural Solomon Islands children or children in the Solomon Islands in general must not be deprived of their human rights to properly structured, developmentally appropriate, and relevant physical education programs.

Special acknowledgement is made to the School of Education Research Committee, University of the South Pacific, which provided support in the funding of this project.

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The provision of physical education services for students with hearing impairment

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Abstract

Physical education is an educational process which develops physical, mental, social, emotional and spiritual growth of the youth in a suitable environment. Physical education helps to promote healthy exercise, healthy living, and team building and working as a member of a team. The importance of training the body as well as the mind became prevalent in the educational system during the 1940. Fundamental changes were initiated in physical education for students with special needs in some states. The value of play was also recognized as an educational tool to implement social, mental, and physical development of students with hearing impairment. Schools need to involve their students in daily physical education classes. The emphasis of such program should be placed on promoting physical fitness and developing skills that lead to a lifelong enjoyment of physical activity and healthy competition. Keeping in view the importance of physical education for the students with hearing impairment, a study entitled “the provision of physical education services for students with hearing impairment” was conducted. The objective of study was to identify the available facilities of physical education for students with hearing impairment in special schools of Punjab. For this purpose, researchers selected a sample of 54 teachers of students with hearing impairment across 10 cities of Punjab. The study will help to find out the current available services and facilities of physical education for student with hearing impairment in special schools.

Keywords: Physical education (PE), Students with hearing impairment (SWHI)

Introduction

Physical education is an educational process, which aims to enhance total human development and performance through movement and experience of a range of physical education within an educational setting”. (wiki.answers.com) Physical education is defined as “instruction in the development and care of the body ranging from simple calisthenics exercises to a course of study providing training in hygiene, gymnastics, and the performance and management of athletic games. (Merriam-Webster Dictionary).

Physical education lays emphasis on constant exercise in order to maintain a healthy lifestyle. It also encourages the development of motor skills, a sense of sportsmanship, and instills focus and determination in sports. The basic components of physical education can be found in a number of specialized distance learning courses, children must be able to perform these physical activities or sports too. (Acosta, J.2008)
One potential barrier to participation in sports in the Deaf community is a simple lack of awareness. Having deaf students investigate what is available and how to become involved in Deaf sport opportunities is a worthwhile school activity for a number of reasons. On the academic side, students will explore a culture that is meaningful to them, and, if deep enough, this exploration can lead to a better understanding of the sociocultural forces binding members of the Deaf community. Issues relating to the accessibility of sports facilities may also be uncovered, and steps taken to resolve them. An investigation of this kind ties in with curriculum goals relating to reading, research, reporting, and the use of technology (e.g., the Internet) to assist students with schoolwork. (Stewart, D.A.&Ellis, M.K., 2005)

An ideal physical education program would be one which focuses mainly on aspects leading to lifelong participation in and enjoyment of physical activity accompanied by appropriate fitness levels. It is a common practice in school that children are involved in physical activities only in physical education classes throughout the day, and without them, an even greater number of children, including deaf children, would incline to sedentary lifestyles. Schools need to involve their students in daily physical education classes. The emphasis of such a program should be placed on promoting physical fitness and developing skills that lead to a lifelong enjoyment of physical activity and healthy lifestyles. (Stewart, D. A. & Ellis, M. K., 1999)

Individualized physical education refers to Programs that respond to the unique needs of each individual. For handicapped students this includes movement programs that respond to the physical, mental and emotional needs of each individual through structured, success oriented learning experiences. Therapeutic physical education strives to rehabilitate through prescribed exercise those who have temporary disabilities. Developmental physical education stresses development of motor ability and physical fitness in those who are below the desired level. Remedial physical education consists of programs designed to correct faulty movement patterns through selected activities. Adapted physical education programs are those that have the same objectives as the regular physical education program, but in which adjustments are made in the regular offerings to meet the needs and abilities of exceptional students. (Dunn, J. & Fait, H., 1989, P.3-4)

Through physical education (PE), students develop confidence, healthy spirit to work together and skills in a range of activities, such as dance, games, gymnastics, swimming, athletics, outdoor and adventurous activities. They work as individuals, in groups and in teams. Moreover, they learn the importance of healthy, active lifestyles. Findings what they like to do, what their aptitudes are at school, and how to be involved in physical activity helps them make informed choices about lifelong physical activity (www.qca.org.uk). According to RID, 2002(as cited by Winnick J.P. 2005), students who are deaf might benefit from the use of an interpreter during the classes, of physical education. The role of an educational interpreter is to ease communication among deaf and others such as teachers, service providers, physical education instructors and peers within the educational setting.

David Stewart (1991) opines that “deaf sport is a vehicle for understanding the dynamics of being deaf. It facilitates a social identification among deaf people that is not
The provision of physical education services for students with hearing impairment

easily obtained in other socio-cultural contexts. Essentially, deaf sport emphasizes the honour of being deaf, whereas society tends to focus on the adversity of hearing loss”. (p.1)

Participation in sport makes an important contribution to the health and fitness of individuals with disabilities. Studies suggest that the fitness levels of disabled youth are lower than those of their non disabled peers because the nutritional status of some disabled youth is affected by several factors including specific disability, medication required, and behavioral influences. In a study of children with developmental disabilities, Palmer (1987) found that over 90 percent exhibited nutritional disorders. (Dunn, J. & Fait, H., 1978)

Keeping in view the importance of physical education for children with hearing impairment this study was conducted to see “Provision of available physical education services for students with hearing impairment (SWHI) in the special schools of Punjab”.

Objectives of the study

The objectives of the study were to:

1. Identify the available facilities of physical education for the students with hearing impairment.

2. Create awareness among the teachers and parents of children with hearing impairment about available physical education services in special schools.

3. To recommend future studies in the field.

Methods

The researchers selected conveniently a sample of 54 teachers of children with hearing impairment who came to attend a workshop on special education in Lahore across 10 cities of Punjab (Attock, Faisalabad, Lahore, Rawalpindi, Jhelum, Multan, Sahiwal, Fateh Jang, Jhelum, and Joharabad). After reviewing the related literature a questionnaire was developed to collect the data. The questionnaire was based on the components of hypothetical framework and it was formulated to study the provision of physical education services for children with hearing impairment in special schools of the Punjab. Questionnaire was consisted of 22 close-ended items. The teachers were required to respond on three scales (ranging from 1 -3, i.e. 1 = no, 2 = To Some Extent, 3 = Yes). Questionnaires were personally distributed and then collected back from the teachers of children with hearing impairment.

After data collection responses to each statement were tabulated, analyzed and interpreted. The results of data are presented as it follows:
### Frequency Distribution of Teachers’ Responses

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Statements</th>
<th>Yes %</th>
<th>To some extent %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Should physical education be compulsory for (SWHI)?</td>
<td>0.7</td>
<td>7.4</td>
<td>9.9</td>
</tr>
<tr>
<td>2.</td>
<td>Have physical education services been provided to all schools for (SWHI)?</td>
<td>0.4</td>
<td>35.2</td>
<td>4.4</td>
</tr>
<tr>
<td>3.</td>
<td>Has qualified physical education staff been appointed in all the schools for (SWHI)?</td>
<td>0.4</td>
<td>48.1</td>
<td>1.5</td>
</tr>
<tr>
<td>4.</td>
<td>Is qualified staff imparting physical education according to the capabilities of (SWHI)?</td>
<td>0.0</td>
<td>27.8</td>
<td>2.2</td>
</tr>
<tr>
<td>5.</td>
<td>Is there availability of play grounds in schools for (SWHI)?</td>
<td>3.3</td>
<td>33.3</td>
<td>3.3</td>
</tr>
<tr>
<td>6.</td>
<td>Is suitable sports equipment available in schools for (SWHI)?</td>
<td>7.8</td>
<td>57.4</td>
<td>4.8</td>
</tr>
<tr>
<td>7.</td>
<td>Are sports and games in schools according to the interest of (SWHI)?</td>
<td>5.9</td>
<td>46.3</td>
<td>7.8</td>
</tr>
<tr>
<td>8.</td>
<td>Do teachers know about the interest of (SWHI)?</td>
<td>8.9</td>
<td>38.9</td>
<td>2.2</td>
</tr>
<tr>
<td>9.</td>
<td>Do parents know about physical education?</td>
<td>8.5</td>
<td>51.9</td>
<td>9.6</td>
</tr>
<tr>
<td>10.</td>
<td>Do parents encourage their (SWHI) to participate in sports and games?</td>
<td>8.1</td>
<td>37.0</td>
<td>4.8</td>
</tr>
<tr>
<td>11.</td>
<td>Does the administration of schools of (SWHI) take interest in the sports of (SWHI)?</td>
<td>1.9</td>
<td>33.3</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>12</td>
<td>Do parents cooperate with teachers in conducting games according to the interest of children?</td>
<td>0.0</td>
<td>37.0</td>
<td>3.0</td>
</tr>
<tr>
<td>13</td>
<td>Are sports competitions conducted in schools for (SWHI)?</td>
<td>4.4</td>
<td>31.5</td>
<td>4.1</td>
</tr>
<tr>
<td>14</td>
<td>Do the schools for (SWHI) conduct inter school competitions?</td>
<td>5.9</td>
<td>24.1</td>
<td>0.0</td>
</tr>
<tr>
<td>15</td>
<td>Is the annual sports day conducted regularly in schools for (SWHI)?</td>
<td>3.3</td>
<td>22.2</td>
<td>4.4</td>
</tr>
<tr>
<td>16</td>
<td>Are sports competitions conducted between students with and without hearing impairment?</td>
<td>4.8</td>
<td>27.8</td>
<td>.4</td>
</tr>
<tr>
<td>17</td>
<td>Is the attitude of physical education staff positive towards sports and games meant for (SWHI)?</td>
<td>4.4</td>
<td>48.1</td>
<td>.4</td>
</tr>
<tr>
<td>18</td>
<td>Is sufficient time allocated to the sports of (SWHI)?</td>
<td>7.0</td>
<td>46.7</td>
<td>6.7</td>
</tr>
<tr>
<td>19</td>
<td>Do sports and games influence the education of (SWHI)?</td>
<td>8.5</td>
<td>44.4</td>
<td>7.0</td>
</tr>
<tr>
<td>20</td>
<td>Do the physical education instructors impart training to (SWHI) in a proper way?</td>
<td>2.6</td>
<td>38.9</td>
<td>8.9</td>
</tr>
<tr>
<td>21</td>
<td>Is there a need to increase the facilities of physical education for (SWHI) in schools?</td>
<td>4.1</td>
<td>18.5</td>
<td>.4</td>
</tr>
<tr>
<td>22</td>
<td>Are the physical education instructors able to impart training to (SWHI) in sign language?</td>
<td>8.1</td>
<td>35.2</td>
<td>6.7</td>
</tr>
</tbody>
</table>
Results

The major findings are as follows:

Majority of the respondents (90.7%) reported that physical education was necessary for SWHI.

Only (20.4%) teachers reported that physical education facilities have been provided to all the schools for SWHI.

Only (20.4%) teachers were of the view that qualified physical education staff had been appointed in all the schools for SWHI.

Majority of the respondents (77.8%) reported that qualified staff was imparting physical education according to the capabilities of SWHI.

Majority of the respondents (66.6%) were not satisfied with the availability of play grounds in the schools for children with hearing impairment.

Only (27.8%) respondents reported that there was proper sports equipment available in schools for SWHI.

Only (25.9%) respondents were of the view that sports and games in schools were according to the interest of SWHI.

Only (38.9%) teachers responded that teachers knew about the interest of SWHI in games.

Majority of the respondents (81.5%) reported that parents did not know about physical education.

A reasonable proportion of teachers (48.1%) reported that parents encouraged their SWHI to participate in sports.

Majority of the respondents (51.9%) reported the administration of schools of (SWHI) took interest in the sports of children with hearing impairment.

(50%) teachers answered in affirmation about parents’ cooperation with teachers in conducting games.

Majority of the teachers (55.6%) reported that sports competitions were not conducted in schools for children with hearing impairment.

Only (25.9%) teachers reported that the schools for SWHI conducted inter school competitions.

Only (33.3%) respondents reported that annual sports day was conducted regularly in schools for SWHI.
Majority of the respondents (64.8%) reported that sports competitions were conducted between children with and without hearing impairment.

Majority of the teachers (92.5%) reported about the positive attitude of physical education staff towards sports meant for SWHI.

Majority of the respondents (63.4%) reported that sufficient time was not allocated to sports for SWHI.

Majority of teachers (81.4%) reported that the sports did not affect the education of SWHI.

Majority of the respondents (81.5%) opined that physical education instructors were imparting training to SWHI in a proper way.

Majority of the respondents (92.6%) reported that there was a need to increase facilities of physical education for SWHI in schools.

Majority of the respondents (51.9%) reported that the physical education instructors were not able to impart training to SWHI in sign language.

**Discussion**

Following conclusions are drawn on the basis of findings.

1. Physical education is necessary for the SWHI.
2. Qualified staff has not been appointed in schools for SWHI and most of schools are not having proper playgrounds.
3. Schools do not arrange annual sports day and inter school competitions on regular basis. Moreover sufficient time is not allocated to imparting physical education to SWHI.
4. There is shortage of proper sports equipments in schools.
5. Physical education instructors are not trained in sign language.
6. Most of the parents of SWHI have no knowledge of physical education.

**Recommendations**

Following are the recommendations of the study:

1. Measures should be taken to make physical education an integral part of curriculum.
2. Annual sports day and inter school competitions should be arranged between students with and without hearing impairment.

3. Sports equipments must be provided to all school for SWHI.

4. Government should appoint qualified physical education staff in schools for SWHI.

5. Staff should be encouraged to get proficiency in sign language by arranging training courses on sign language.

6. Schools for SWHI should be constructed purposely with proper play grounds.

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The level of access to quality health and physical education of children with disabilities in Pakistan

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Abstract

The provision of quality health and physical education has not been properly conceived in Pakistan. This important segment of education is not even on the agenda of teacher training programs in the field of physical education, special education or general education. As a result no trained teachers in the area of HPE are available in the country. The “National Policy for Persons with Disabilities in Pakistan 2002” does talk about the need of HPE but is silent about how to do it. In a recent effort to recruit about 30 HPE teachers in special schools even the nomination of an expert on selector’s panel turned out to be a terrible experience. Not a single qualified teacher appeared before selection board. Vocational education teachers are frequently picked up to deal with HPE in special schools who always take it as a fatigue. Keeping in view this background the present study is conducted to measure the access of children with disabilities to quality HPE in Pakistan. A sample of 50 students across all disabilities was selected for interview studying in special in Lahore metropolitan city. An interview schedule comprising 30 questions was administered through trained interviewers. The results indicate that level of accessibility is far below than other countries in the region. The presentation concludes with practical recommendations for policy makers in Pakistan.

Keywords: Health, Physical education

Introduction

The provision of quality health and physical education for children with disabilities has not been properly conceived in Pakistan. This important segment of education is not even on the agenda of teacher training programs in the field of physical education, special education or general education. As a result no trained teachers in the area of HPE are available in the country. The “National Policy for Persons with Disabilities in Pakistan 2002” does talk about the need of HPE but is silent about how to do it. In a recent effort to recruit about 30 HPE teachers in special schools even the nomination of an expert on selector’s panel turned out to be a terrible experience. Not a single qualified teacher appeared before selection board. Vocational education teachers are frequently picked up to deal with HPE in special schools who always take it as an extra burden.

The Adapted Physical Education National Standards (2008) approved 15 standards in order to promote quality physical education. They require specialized knowledge on human
development, motor behavior, exercise science, measurement and evaluation, history and philosophy of APE, unique attributes of learning, curriculum theory and development, instructional design and planning, teaching, ethics, communication etc. Having knowledge of the fact that country lacks APE trained teachers this study focused on the product of “what so ever” APE is available in special schools in Pakistan. It seems desirable to mention the policy statement which reads as “Provision of appropriately designed sports and recreational facilities for children with disabilities and adults would be undertaken in collaboration with all public and private authorities. Such facilities would, wherever possible, be encouraged within general schemes and will not be segregated as far as possible” (National Policy for Persons with Disabilities 2002).

Statement of the problem

Keeping in view the above discussion this paper focused on “Level of Access to Quality HPE of Children with Disabilities in Pakistan”

Objectives of the study

The present research was conducted to:

1. Identify the health and physical education services available to children with disabilities in special schools.
2. Survey the satisfaction level of children with disabilities for available health and physical education services
3. See the level of access to quality HPE of children with disabilities

Methodology

The sample of the study comprised 50 children with disabilities studying in classes 6 to 10 of special schools of Lahore city. Sample was conveniently selected from three different special schools governed by federal and provincial governments. Out of these 50 children, 41.5% were female and 58.5% were male. They were between the ages of 12 to 19 years with a mean 15 years. In this sample 45.3% children were with hearing impairment, 17% children were with visual impairment and 37.7% children were physically handicapped.

Researchers developed a schedule for structured interviews for the purpose of data collection. Trained interviewers interviewed the blind and physically handicapped children whereas the interviews of children with hearing impairment were conducted sign language.

Data analysis

After collecting data from children with disabilities from the special schools of Lahore metropolitan city, the researchers analyzed the data on SPSS computer software. Responses were coded through by using a coding scheme. Descriptive analysis was run to reach the results. Following tables show the results:
Table 1 Question about the overall quality of health and physical education

<table>
<thead>
<tr>
<th>Questions</th>
<th>Inappropriate in %</th>
<th>Appropriate in %</th>
<th>Good in %</th>
<th>Excellent in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of what quality does your school offer health and physical education?</td>
<td>-</td>
<td>15.1</td>
<td>69.8</td>
<td>15.1</td>
</tr>
<tr>
<td>Of what quality trained physical education teachers are available in your school?</td>
<td>-</td>
<td>60.4</td>
<td>20.8</td>
<td>18.8</td>
</tr>
<tr>
<td>To what extent your school is equipped with necessary goods for health and physical education</td>
<td>5.7</td>
<td>17</td>
<td>50.9</td>
<td>26.4</td>
</tr>
<tr>
<td>Is time for health and physical education reasonable?</td>
<td>1.9</td>
<td>58.5</td>
<td>20.8</td>
<td>18.8</td>
</tr>
</tbody>
</table>

Table 2 Questions about exercising

<table>
<thead>
<tr>
<th>Questions</th>
<th>Yes in %</th>
<th>No in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there any specific play ground for health and physical education?</td>
<td>54.7</td>
<td>45.3</td>
</tr>
<tr>
<td>Is physical education teacher available in the ground on scheduled time?</td>
<td>98.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Does physical education teacher teach you according to your disabilities and special education needs?</td>
<td>60.4</td>
<td>39.6</td>
</tr>
<tr>
<td>Does health &amp; physical education improve your motor skills?</td>
<td>94.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Which of the following exercises your school offers?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arm Exercises</td>
<td>94.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Leg exercises</td>
<td>90.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Abdomen exercise</td>
<td>39.6</td>
<td>60.4</td>
</tr>
<tr>
<td>Which of the following games your school offers?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Foot ball & 100 & - \\
Volley ball & 79.0 & 21.0 \\
Cricket & 100 & - \\
Hockey & 79.0 & 21.0 \\
Table Tennis & 79.0 & 21.0 \\
Badminton & 79.0 & 21.0 \\
Race & 100 & - \\

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Very little</th>
<th>To some extent</th>
<th>Very much</th>
<th>No Resp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical education develops balance and coordination in your body.</td>
<td>47.2</td>
<td>3.8</td>
<td>26.4</td>
<td>22.6</td>
<td>-</td>
</tr>
<tr>
<td>Physical education helps in your motor and physical growth and development.</td>
<td>3.8</td>
<td>3.8</td>
<td>24.5</td>
<td>69.8</td>
<td>5.7</td>
</tr>
<tr>
<td>Physical education plays an important role in your mental growth.</td>
<td>1.9</td>
<td>11.3</td>
<td>26.4</td>
<td>16.4</td>
<td>44</td>
</tr>
<tr>
<td>Physical education promotes competitiveness.</td>
<td>1.9</td>
<td>5.7</td>
<td>15.1</td>
<td>77.3</td>
<td>-</td>
</tr>
<tr>
<td>Physical education enables you to make important decision during game.</td>
<td>1.9</td>
<td>3.8</td>
<td>62.3</td>
<td>28.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Physical education develops confidence.</td>
<td>3.8</td>
<td>3.8</td>
<td>17</td>
<td>75.4</td>
<td>-</td>
</tr>
<tr>
<td>Physical education develops corporation.</td>
<td>3.8</td>
<td>-</td>
<td>62.3</td>
<td>32.1</td>
<td>5.6</td>
</tr>
<tr>
<td>Physical education develops sportsman spirit.</td>
<td>1.9</td>
<td>1.9</td>
<td>54.7</td>
<td>39.6</td>
<td>1.9</td>
</tr>
</tbody>
</table>
The provision of physical education services for students with hearing impairment

**Table 4** Statements about the quality of sports

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Very little</th>
<th>To some extent</th>
<th>Very much</th>
<th>No Resp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports competitions are held in schools</td>
<td>3.8</td>
<td>5.7</td>
<td>17.0</td>
<td>73.5</td>
<td>-</td>
</tr>
<tr>
<td>School conducts inter school sports competitions</td>
<td>7.5</td>
<td>1.9</td>
<td>30.2</td>
<td>58.5</td>
<td>1.9</td>
</tr>
<tr>
<td>School sends you to other cities and countries for sports competition</td>
<td>13.2</td>
<td>7.5</td>
<td>18.9</td>
<td>60.4</td>
<td>-</td>
</tr>
<tr>
<td>Children are selected on merit for competition</td>
<td>1.9</td>
<td>1.9</td>
<td>26.4</td>
<td>67.9</td>
<td>1.9</td>
</tr>
<tr>
<td>All children are provided equal opportunities to participate in games</td>
<td>1.9</td>
<td>1.9</td>
<td>34.0</td>
<td>62.2</td>
<td>-</td>
</tr>
<tr>
<td>Latest facilities are being provided in school for physical education</td>
<td>7.5</td>
<td>17.0</td>
<td>64.2</td>
<td>9.4</td>
<td>1.9</td>
</tr>
</tbody>
</table>

**Table 5** Statements about the trust in HPE

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Very little</th>
<th>To some extent</th>
<th>Very much</th>
<th>No Resp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent the standards of physical education are helpful for the development of normal growth</td>
<td>3.8</td>
<td>1.9</td>
<td>37.7</td>
<td>56.6</td>
<td>-</td>
</tr>
<tr>
<td>To what extent you are interested in participating in international sports</td>
<td>1.9</td>
<td>5.7</td>
<td>52.8</td>
<td>39.6</td>
<td>-</td>
</tr>
<tr>
<td>To what extent do you believe that you can brighten the name of Pakistan through participating in international sports competitions</td>
<td>3.8</td>
<td>9.4</td>
<td>58.5</td>
<td>28.3</td>
<td>-</td>
</tr>
<tr>
<td>To what extent you want to do exercise &amp; get physical education with normal children</td>
<td>1.9</td>
<td>5.7</td>
<td>11.3</td>
<td>81.1</td>
<td>-</td>
</tr>
</tbody>
</table>
To what extent do you consider physical education important for your life

<table>
<thead>
<tr>
<th></th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9</td>
<td>5.7</td>
<td>17.0</td>
</tr>
<tr>
<td>17.0</td>
<td>75.4</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 6 Percent of respondents who experienced unpleasant situations

<table>
<thead>
<tr>
<th>Nature of experience</th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate teacher</td>
<td>82.8</td>
<td>17.2</td>
</tr>
<tr>
<td>Inappropriate sports goods</td>
<td>72.4</td>
<td>27.6</td>
</tr>
<tr>
<td>Inappropriate behavior</td>
<td>75.9</td>
<td>24.1</td>
</tr>
<tr>
<td>Unstandardized physical education</td>
<td>58.6</td>
<td>41.4</td>
</tr>
<tr>
<td>Unjust prize distributions</td>
<td>62.1</td>
<td>37.9</td>
</tr>
<tr>
<td>Sexual discrimination</td>
<td>55.2</td>
<td>44.8</td>
</tr>
<tr>
<td>Sexual harassment</td>
<td>41.4</td>
<td>58.6</td>
</tr>
<tr>
<td>Unequal opportunities</td>
<td>48.3</td>
<td>51.7</td>
</tr>
</tbody>
</table>

Findings

Following findings are based on data analysis reported above:

1. Majority (69.8%) of children responded that school offers good health and physical education.

2. Majority (60.4%) of children responded that trained physical education teachers are available in school.

3. Only (54.7%) of children responded that there is specific ground for health and physical education

4. Only (50.5%) of children responded that school is equipped with good necessary goods for health and physical education

5. Only (58.5%) of children responded that an appropriate time for health and physical education is mentioned in school timetable
The provision of physical education services for students with hearing impairment

6. Majority (98.1%) of children responded that only on specific time (visiting) physical education teacher is available in ground.

7. A slight majority (60.4%) of children responded that physical education teacher teaches them according to their disabilities and special education needs.

8. Majority of children responded that school offers arm exercises (94%), leg exercises (90.5%) and abdomen exercises (39.6%).

9. The children responded that school offers games such as football (100%), volleyball (100%), hockey (79%) cricket (100%), table tennis (79%), badminton (79%) and race (100%).

10. A large group (47.2%) of children complained that physical education does not develop balance and coordination in their body at all.

11. Majority (69.8%) of children responded that physical education very much helped them in motor and physical growth and development.

12. Only 54.7% children responded that physical education played an excellent role in their mental and physical growth excellent.

13. Majority (77.4%) of children responded that physical education very much developed competitiveness in them.

14. Majority (62.3%) of children responded that physical education enable them to make important decision during games.

15. Majority (75.5%) of children responded that physical education very much develop confidence.

16. Majority (62.3%) of children responded that to some extent physical education develop corporation.

17. A total of 54.7% children responded that physical education developed sports man spirit only to some extent.

18. Majority (73.6%) of children responded that sports competitions are held in schools.

19. Majority (58.5%) of children responded that school participates in inter school sports competitions.

20. Majority (60.4%) of children responded that their school very much send them to other cities and countries for sports competition.

21. Majority (67.9%) of children responded that children are selected on merit for competition only to some extent.
22. Majority (62.3%) of children responded that all children are provided equal opportunities to participate in games.

23. Majority (64.2%) of children responded that latest facilities were provided in school for physical education to some extent.

24. The children responded that they had bitter experience of inappropriate teachers (82.8%), inappropriate attitudes (75.9%), inappropriate sports goods (72.4%), unjust prize distribution (62.1%), sub-standard training (58.6%), sexual discrimination (55.2%), un-equal opportunities (48.3%), sexual harassment (41.4%) during physical education training. These statements were only reported by 29 children (7 with visual impairment and 22 with physical disability). All 24 children with hearing impairment did not respond.

25. Majority (56.4%) of children responded the standard of physical education promoted the development of normal growth.

26. A slight majority (52.8%) of children responded that they were interested to participate in international sports to some extent.

27. A slight majority (58.5%) of children responded that they believe that they could brighten the name of Pakistan through participating in international sports competition to some extent.

28. Majority (81.1%) of children responded that they wanted to do exercise and get physical education with normal children very much.

29. Majority (75.5%) of children responded that they considered the importance of physical education very much.

Conclusions

Following conclusions have been drawn on the basis of findings of the study:

1. The respondents tended to give socially desirable responses in the beginning of the questionnaire. They, however, were more specific to the details of HPE in the latter part of the questionnaire.

2. The professionally trained whole time regular staff is lacking in special schools. Freelance self trained instructors are hired on part time basis.

3. All three schools formally offer health and physical education and for this purpose they are equipped with all three types of resources i.e. material resources, human resources and time resources.

4. There is a room for improvement indicated across different statements in spite of the fact they have no experience of a world class HPE program.
5. The experience of inappropriate teacher and inappropriate sports goods by about 82.8% and 72.4% respondents is alarming and need immediate attention.

6. A complaint of sexual harassment by 41% respondents is a serious concern in a culture where reporting of such incidents is not socially desirable. It should be, in fact, a matter of zero tolerance.

7. Sexual discrimination is reported by 52.2%. It must be noticed immediately.

Recommendations

Following recommendations were made on the basis of conclusions of the study:

1. Further studies are needed on large sample in order to make generalizations.

2. The Ministry of Social Welfare and Special Education should develop national standards on HPE.

3. Teacher training institutions may start B.S. and M.S. degree courses on HPE.

4. The parents of children with disabilities should be encouraged to participate in the development and implementation of national standards.

5. A code of ethics should be developed to stop all forms of sexual harassment.

References


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Does sport participation facilitate acculturation among adolescents with migration background? Bridging the gap between political claims and empirical evidence

Markus Gerber, Dean Barker, Natalie Barker-Ruchti, Erin Gerlach, Martin Knöpfli, Claudine Müller, Simone Sattler and Uwe Pühse
University of Basel, Switzerland

Abstract

Migration is a very old phenomenon. However, there is no doubt that the affluence of migrants towards countries of Central and Northern Europe has dramatically increased during the second half of the 20th century. Also, new forms of migration have appeared resulting in a diversification of the migration movement. Generally, Switzerland figures among the most popular immigration countries. As a consequence, a significant increase of residents with foreign nationalities occurred during the last decades. Therefore, the acculturation and integration of the immigrant populations became an important and urgent issue on the political agenda. Today, most cities and cantons have their own guidelines describing the core measures to be taken for achieving a higher level of social integration. Hereby, physical activity and sport participation are consistently considered as a good means to facilitate the acculturation process. Worldwide, there is a great dearth of research about the possible impact of physical activity and sport participation on the acculturation of young migrants. Thus, it is still not possible to say whether the social expectancies associated with a physically active lifestyle are accurate or not. This study is intended to bridge the gap between political claims and lacking empirical findings. Concretely, we provide empirical evidence how sport participation and migration status are connected with the level of perceived acculturation in a large adolescent sample in the North-Western part of Switzerland.

Procedure & methods: A quantitative survey questionnaire was administered to a sample of N=1506 8th to 9th grade students. To gather information about the level of social integration, the students filled in a brief acculturation index and the AHIMSA Acculturation Scale, both of which constitute standardized, validated and well-accepted instruments. Sport participation was assessed with a list of 23 activities, providing a total frequency and duration score. Multivariate ANOVAS provide insight whether the students’ degree of acculturation is dependent of their migration status and sport participation.

Keywords: Motivation, Physical education, Satisfaction, Stress

Introduction

Migration is a world-wide and historical phenomenon. However, the movement of migrants towards countries of Central and Northern Europe has dramatically increased
during the second half of the 20th Century. New forms of migration – such as a persistent rather than a temporary migration – have appeared resulting in a diversification of the migration movement (Alba & Nee, 1997). Generally, Switzerland figures among the most popular immigration destinations in Europe (Thränhardt, 2001). As a consequence, a significant increase of residents with foreign nationalities has occurred during the last decades. With ongoing globalisation, this trend is likely to persist in the future (Castles, 2002).

In Switzerland, this fact combined with an increasing movement of Swiss middle and upper class families away from urban residence areas towards suburban region has resulted in a strong increase and concentration of the migrant population in inner city areas. As a consequence, this development has prompted some politicians to call for a more restrictive immigration policy, whereas others have emphasized the need to consider acculturation and integration of immigrants as a key issue in today’s society. Accordingly, almost every Swiss city and canton (state) has developed guidelines describing the core measures to be taken for achieving a higher level of social integration of migrants. Within such guidelines, physical activity and sport participation have been consistently portrayed as an effective means to facilitate acculturation processes. Advocates that see sport to have a socially integrative function argue that participation has the potential to provide contacts with the local population, which in turn transmit their social values (Giess-Stüber, 2006; Pühse & Roth, 1999). Some commentators have, however, emphasized that the mere participation in sports does not automatically guarantee equal rights and participation opportunities in the social system of sport or integration on a more general social level (Thiel & Seiberth, 2007). This is well illustrated by the fact that migrants are substantially underrepresented in many segments of the sport system as for example in administrative positions (Elling & Claringbould, 2005; Elling, De Knop, & Knoppers, 2001; Moens & Scheerder, 2004).

Despite the political and social urgency for the integration of migrants in Switzerland and elsewhere, research examining possible impacts of physical activity and sport on the acculturation of young migrants is deficient. The Swiss Health Survey (BFS, 2006) showed that Swiss individuals report higher amounts of physical activity compared to migrants. Among young men, however, differences appeared less pronounced. This is in line with other studies, which found that female migrants engage less in organised sports than male migrants or local women (Pfister, 2000). Beside these studies, a plethora of macro-level analyses looking at the extent to which (inter)national sport systems facilitate/impede the inclusion of migrants and ethnic minorities exists (e.g. Blecking, 2006). Moreover, the literature provides a number of reports describing local and national projects/campaigns designed to promote social integration among migrants. Mostly, anecdotal evidence is provided pointing to positive effects of these interventions (e.g. Carlsson & Haaland, 2004). To the best of our knowledge, however, no large-scale study exists investigating whether sport participation is related to the acculturation process among migrants. To bridge the gap between political claims and lacking empirical evidence, the present paper is intended to show how sport participation and migration status are connected to acculturation processes in a large adolescent sample in the North-Western part of Switzerland.
Method

The present study includes a mixed method approach. While its quantitative methods (three subsequent measurements) provide longitudinal data, the qualitative data collection methods offer in-depth cross-sectional information. As depicted in Figure 1, an intervention programme will be implemented at two schools intended to promote leisure time physical activity. Based on pedagogical approaches developed from critical pedagogy (Fernandez-Balboa, 1995; Tinning, 2002) and sport education (Siedentop, 1994), the intervention is also aimed at facilitating social integration among students (cp. Krik, 2006).

The following analyses are based on the survey-data gathered between October and December 2008. A written questionnaire was administered to a sample of N=1506 8th to 9th grade students in a classroom-setting.

Figure 1 Schematic overview of the study design of the present investigation

To assess the students’ migration backgrounds, students indicated the place of birth of their mother and father (cp. Phinney, 1992). If both parents were born in Switzerland, students had “Swiss background”. If one parent was born in Switzerland, the other abroad, students were classified as having “bicultural background”. If both parents were born in another country than Switzerland, adolescents were either considered as having “first generation migration background” (if the students were born abroad) or “second generation migration background” (if they were born in Switzerland).

To gather information about the level of acculturation, the students filled in a brief acculturation index (Norris, Ford, & Bova, 1996) and the AHIMSA Acculturation Scale (Unger et al., 2002), both of which constitute standardized, validated and well-accepted instruments. The first instrument consisted of four items anchored on a 5-point Likert-type scale. Following the assumption of Marin et al. (1987) that language use is the most reliable
indicator of the process of acculturation, respondents indicated which language they normally use for a) thinking and b) reading/speaking. Moreover, they were asked which language they usually speak c) with their friends and d) at home. Possible answers ranged from (1=“only foreign language”, 2=“more foreign language than German”, 3=“both equally”, 4=“more German than foreign language”, 5=“only German”). As recommended by Norris et al. (1996), an average score was computed to estimate the level of acculturation (with higher scores meaning higher acculturation). In addition, a second acculturation scale was administered. This was in accordance with some scholars’ contention (e.g. Unger et al., 2002) that acculturation should preferably be understood as a multicultural and multidimensional process (and not language-based only). For the purpose of this study, students answered six items (two items of the original scale did not apply for a Swiss context) including questions such as “I am most comfortable being with people from …” or “The way I do things and the way I think about things are from …”. Response option for the items were Switzerland, the country my family is from, both or neither. Based on this procedure, four subscores were derived: Swiss orientation (=“assimilation”), other country orientation (=“separation”), both countries orientation (=integration”), and neither country orientation (=“marginalisation”). The score for each acculturation strategy ranged from zero to six.

Sport participation was assessed with a list of 23 activities, providing a total frequency and duration score (cp. Fuchs, 1990). Students could also indicate type, frequency and duration of activities that were not included in the list. Although scores could be obtained for total, moderate and vigorous activity, only the results of the global scale will be presented here. To use sport participation as an independent variable in ANCOVA, nominal categories were built by means of the tertiles. Finally, three (sport participation) x 4 (migration) ANCOVAs were run to provide insight into whether students’ acculturation depends on their sport participation and migration background (after controlling for gender, age, school type, school level and socio-economic status).

Results

The present study confirms that having migration backgrounds is common among adolescents attending Basel inner-city schools. 31.1% had a Swiss background, 15.4% bicultural background, 41.2% a second generation migration background and 12.0% a first generation migration background. Descriptive statistics regarding amount and frequency of sport participation and for the acculturation indicators are displayed in Table 1, for boys and girls separately. As can be seen, acculturation was not a function of participants’ gender. In turn, boys reported significantly higher levels of sport participation.
Table 1. Means and standard deviations for the acculturation measures and sport participation for the total sample, boys and girls

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Language</td>
<td>3.97</td>
<td>1.00</td>
<td>3.94</td>
</tr>
<tr>
<td>Assimilation</td>
<td>1.95</td>
<td>2.08</td>
<td>2.02</td>
</tr>
<tr>
<td>Separation</td>
<td>1.16</td>
<td>1.68</td>
<td>1.23</td>
</tr>
<tr>
<td>Integration</td>
<td>2.34</td>
<td>1.87</td>
<td>2.25</td>
</tr>
<tr>
<td>Marginalization</td>
<td>0.55</td>
<td>1.08</td>
<td>0.49</td>
</tr>
<tr>
<td>Sport participation (in min)</td>
<td>506</td>
<td>492</td>
<td>627</td>
</tr>
<tr>
<td>Sport participation (episodes per wk)</td>
<td>7.06</td>
<td>6.38</td>
<td>7.91</td>
</tr>
</tbody>
</table>

As Table 2 shows, migration background was significantly related with all acculturation measures. Not surprisingly, Swiss adolescents tended to think, speak and read in German only. In turn, students with bicultural or migration backgrounds reported a higher level of bilingualism. Similar patterns of results emerged for the other acculturation indicators. Adolescents with a Swiss background had a strong orientation towards the Swiss culture (assimilation), whereas separation, integration and marginalization scores were low. Adolescents from bicultural families were likely to orient themselves towards the Swiss or both cultures, whereas youngsters with migration backgrounds had a preference for integration and separation as acculturation strategy.

Table 2. Means and standard deviations for all acculturation measures, dependent on participants’ migration background (SB=Swiss background, BCB=bicultural background, FGMB=first generation migration background, SGMB=second generation migration background)

<table>
<thead>
<tr>
<th></th>
<th>SB</th>
<th>BCB</th>
<th>FGMB</th>
<th>SGMB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Language</td>
<td>4.75</td>
<td>0.50</td>
<td>4.26</td>
<td>0.79</td>
</tr>
<tr>
<td>Assimilation</td>
<td>3.93</td>
<td>1.75</td>
<td>2.33</td>
<td>1.93</td>
</tr>
<tr>
<td>Separation</td>
<td>0.11</td>
<td>0.45</td>
<td>0.50</td>
<td>1.01</td>
</tr>
<tr>
<td>Integration</td>
<td>1.55</td>
<td>1.63</td>
<td>2.48</td>
<td>1.92</td>
</tr>
<tr>
<td>Marginalization</td>
<td>0.42</td>
<td>0.96</td>
<td>0.68</td>
<td>1.23</td>
</tr>
<tr>
<td>Sport participation (in min)</td>
<td>410</td>
<td>378</td>
<td>497</td>
<td>516</td>
</tr>
<tr>
<td>Sport participation (episodes per wk)</td>
<td>5.78</td>
<td>4.39</td>
<td>6.86</td>
<td>7.57</td>
</tr>
</tbody>
</table>

Contrary to claims made in the literature, our preliminary analyses do not support the notion that adolescent migrants who participate in sports are more integrated than those who do not. No significant two-way interactions were found between respondents’ migration background and sport involvement with respect to language use or acculturation strategy (both with frequency and amount of sport participation as predictor variables).
Discussion

Key findings of the present study are that (i) having a migration background has become the norm among students attending Basel inner-city schools, (ii) gender was not associated with acculturation, (iii) acculturation and sport participation depended on migration background and (iv) sport participation did not moderate the relationship between migration background and acculturation. It is important to note that the preferred strategy of acculturation among young migrants was not assimilation, but integration and separation. The fact that many migrants have access to both cultures appears to be positive. However, among many adolescents an exclusive orientation towards the foreign culture remains strong. Moreover, integration appears to be the most feasible acculturation strategy for young migrants, whereas assimilation towards the Swiss culture is relatively rare. Some politicians’ claims for considering assimilation as the best way to integrate immigrants, therefore, seem unproductive. Rather, they may contain unrealistic expectations that most migrants cannot or do not want to achieve.

Contrary to the findings of the Swiss Health Survey, adolescents with migration backgrounds indicated heightened levels of sport participation. This is positive, especially, as it shows that the Swiss sport system is accessible for young migrants. In turn, sport participation was not associated with acculturation among both Swiss and migrant students. It must, however, be remembered that social integration is an extremely broad concept. In this study, one measure focussed on language use, whereas the second instrument included a multidimensional approach. In turn, both scales forced respondents’ to make a choice for a specific language preference/acculturation strategy. Further analyses will be conducted to find out whether similar results occur when different indicators such as peer contacts, life-satisfaction, truancy, violence or delinquency are used as outcome variables. Similarly, it will be explored in more detail whether motives for sport participation differ among adolescent with varying migration backgrounds. Finally, analyses will be performed to find out whether having a migration background is associated with differing experiences during sport participation.

References


Does sport participation facilitate acculturation among adolescents


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Secondary school students’ participation in sport, recreation and physical activity: Factors that influence decisions about participation at key transition points.

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Abstract

In 2008 Sport and Recreation in New Zealand (SPARC) commissioned Victoria University to evaluate the delivery of sport and recreation opportunities (SportFit) in six New Zealand secondary schools. This evaluation included an examination of:

1. students perceptions of their activity levels
2. students reasons for not increasing their current levels of activity
3. students participation levels upon entering secondary school; moving into the senior school; and on leaving school, and
4. the motivations and barriers to students engagement in sport, recreation and physical activity at these key transition points.

Students from one year 10 and one year 12 class at each of the six schools completed questionnaires (N=250). Additionally student focus group interviews were conducted at each of the schools with students representing a range of sporting and recreation involvement levels. For each of the six schools three students who had left school the previous year and six parents of present day students were also interviewed individually. Students were given a definition of activity and asked to indicate how many of the last seven days they had been active. The greatest number of students (24.4%) identified five days with the second largest group (16.4%) identifying seven. For those students not interested in increasing the amount of activity the most popular reason given (39%) was that they already did enough while a further 20% were not motivated and 20% felt they didn’t have time due to school and study. When asked about participation levels at times of transition the students, and their parents, believed that there had been an increase in student levels of participation on entering secondary school. A similar increase was noted when students transitioned from the junior to the senior school. The reasons for these increases included the greater number of options available for sport and recreation and the increasing expectations on players as their sports became more serious. The students, and their parents, were confident that their participation levels would be maintained when they left school. The reality for those who had left school, however, was that this did not necessarily occur. While there were a number of factors identified that supported students participation in sport recreation and physical activity, a number of other factors were identified that were found to act as barriers to student participation.

Keywords: Secondary school, Sport, Recreation, Physical activity
Introduction/Aims

In 2008 Sport and Recreation in New Zealand (SPARC) commissioned Victoria University to evaluate SportFit in six New Zealand secondary schools (Gordon, Hullena, Harker, McKenzie, & Meyer, 2008). SportFit is an over-arching term used to refer to a number of initiatives managed by SPARC that promotes sport and recreation opportunities for 13-18 year olds. These initiatives are aligned with the wider vision held by SPARC of New Zealand as an active nation with high levels of participation (SPARC, 2008).

As a part of this larger project the researchers looked at student engagement in sport, recreation and physical activity both inside and outside of school. This interest was partially driven by the perception that levels of activity decline during student’s time at secondary school (Strauss, Rodzilsky, Burack, & Colin, 2001; van Mechelen, Twist, Post, Snel, & Kemper, 2000). The researchers were specifically interested in examining the impact of three key transition points in students’ lives:

1. when students moved from intermediate school to secondary school;
2. when students moved from the junior to senior secondary school and;
3. when students left secondary school.

The intention of this examination was to establish if changes in levels of engagement occurred at these times and, if so, to identify the motivations and barriers that were influencing students.

Methodology

This research involved a case study approach using multiple sources of data. The six schools selected offered a range of geographical spread, urban/rural settings, ethnicity, decile rating and nominal quality of SportFit practice.

Students

One year 10 and one year 12 class were selected from each of the six schools (250 students in total). All students in these classes were surveyed via a questionnaire completed during school time. The administration of the questionnaire, including the explanation of the processes to be followed, and the distribution and collection of the booklets was completed by a member of the research team at each school.

Focus groups

Focus group interviews were held with six purposively selected students at each school (Bloor, Frankland, Thomas, & Robson, 2001). The sport and recreation coordinator was asked to select two students who were “sportspeople” and who were involved in school sport or physical recreation at an elite level. Two further students who would be considered to have an “average” level of interest and a positive attitude to sport and physical recreation were included. The final two students were not involved in organised school sport or physical recreation but were not considered to be negatively inclined towards these activities.
Parents/volunteers

Interviews were conducted with a number of parents associated with each of the six schools. Each sport and recreation coordinator identified three parents who are involved with school sport or activity programmes as volunteers and three others who are not involved in the school as volunteers. A total of 36 names were supplied by the six schools of which 27 parents were interviewed. Some interviews were not completed either because of incorrect contact numbers being supplied or because the researchers could not make contact within the timeframe allocated for interviews.

Others associated with schools

A number of other people associated with each school were interviewed individually: the school principal, the head of department (HOD) physical education, the school sport and recreation co-ordinator, the regional sport director, a representative of the regional sport trust supporting the school, and three recent school leavers who had siblings presently at school. All interviews were completed face to face where possible or, when this did not occur, by telephone.

Interviews were also completed with:

A representative from the New Zealand Secondary Schools Sports Council (NZSSSC).

Representatives of three national sports organisations (NSO)s associated with school sports. The first was a “major” team code that held a high profile in New Zealand secondary school sport. The second was a “middle” status team sport that was present in all secondary schools. The final NSO was an individual sport that had a low profile in secondary schools.

Data analysis

The data analysis involved both qualitative and quantitative data and was completed using relevant software packages. Survey data from the student questionnaire was coded for analysis using basic descriptive statistics. This analysis was completed using the software package SPSS.

The qualitative analysis of the interviews and focus groups was carried out according to the principles and practices of grounded theory (Kazar, 2005). Data were coded using the QSR Qualitative Research (non-numerical unstructured data indexing, searching and theorising) software package to identify patterns and assist in meaningful interpretation.

The use of multiple sources of data from multiple sites, when combined with the processes used for analysis, address the aims and objectives of the evaluation.
Findings

Transition from intermediate to secondary school

Of the 136 Year 10 students who answered this question, almost half (67) felt that they were more active now than they had been when they were at intermediate school (Table 1). This compares with 25 students who indicated that they had become less active.

Table 1 Year 10 self-reports of how active they are now in sport and physical activity compared to Year 8

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less active</td>
<td>25</td>
</tr>
<tr>
<td>No change</td>
<td>44</td>
</tr>
<tr>
<td>More active</td>
<td>67</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
</tr>
</tbody>
</table>

Year Group = Year 10

A total of 78 written comments were received from the students explaining why they believed that there had been changes in the levels of activity. The comments related to a reduced level of activity were evenly spread between a belief that they were lazy or unmotivated, had injuries, or were restricted by work commitments and increased school work. The students who believed they were now more active, identified a number of reasons for this change. The major reason given was the increased opportunities available for sport and activity at secondary school:

More things to do, stage-challenge, town shows, netball, soccer.
I can play rugby at high school now.
Got new mountain bike and motor bike.

The opportunity for social interaction and the influence of friends were also mentioned by a number of students as motivating factors towards increasing activity:

More friends to do it with.
My friends play basketball.
Because my friends are fit.

while issues related to health and/or appearance influenced others:

Become more fit; makes me happy.
Enjoyment, keeps me fit.
To not get fat.

Similar feelings were reported by the students in the six focus groups with the majority indicating that the amount of activity they participated in had increased when they moved to secondary school. For these students the major reasons were the increased
opportunities available to them, the need to work harder at sport as it became more serious, and the influence of peers. For the small number who felt that the level of activity had decreased, the increased academic requirements were considered the major reason. As in the survey there was a third group who felt that there had been little change.

When the parents were asked about this transition point all but one parent believed that their children had either increased the amount of sport and activity they participated in or that they had maintained the same level. Those who believed that the levels of activity had increased also identified the increased opportunities available at secondary school as a major factor in motivating their children.

Since she’s been in college she’s gotten involved in three other sports, due to encouragement at school.
At college they have more opportunities for sports they hadn’t tried before.

The majority of parents, however, considered that there had been little change. The major reason for this belief was that their children were already very active and that this had been maintained when they went to high school.

My sons love sport so have stayed with the same intensity. Both boys play one sport and are really into it so their participation hasn’t changed.
No changes, really. My daughter’s been involved in sports since she was 4 years old, so it’s an ongoing thing, both in and out of school. My two older kids were always involved, so no change.

**Transition from junior to senior secondary school**

Of the 99 Year 12 students who answered this question, over half felt that they were more active now than they had been in Year 10. Only 20 students indicated that they considered that they were now less active (Table 2). A total of 39 comments were received explaining the reasons for changes in activity levels. For those who considered that there had been a reduction in their levels of activity the demands of school work and out of school employment were the main reasons given:

Don't have enough time to be as active as I used to be – homework, studies, social life.
I work part-time now.
Have to study more for exams.

Other reasons included injuries, a general lack of motivation and the development of other interests.

The largest group of comments came from students who believed that they were now more active than in the junior school. These comments identified the increased demands associated with playing sport at a higher level as a major reason for this change:

I now have netball about 5 times a week – I play representative netball as well as club and social netball.
More involved in the teams – higher team so more physical training is longer.
Reached higher levels, know I have to train more, enjoy being more active, playing more sport.

**Table 2** Think back to your sports and physical activity in Year 10, how active are you now?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less active</td>
<td>20</td>
<td>20.2</td>
</tr>
<tr>
<td>No change</td>
<td>27</td>
<td>27.3</td>
</tr>
<tr>
<td>More active</td>
<td>52</td>
<td>52.5</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Year Group = Year 12

Students also described their growing self-motivation and ability to be responsible, as attributes that allowed them to make the decision to be more active:

- More motivation and self-discipline.
- Have the motivation to do it now.
- More known/confident at school; my transport/time management skills are better; able to handle more.

As with the Year 10 students fun, social interaction/friends, and an interest in developing fitness and health were also listed as factors that supported students’ decisions to become more involved in sport and physical activity.

The students in the focus groups also identified a number of pressures that influenced the degree of involvement that they were able to have with sport and physical activity. For many these influences were contradictory with some influencing them away from involvement while others simultaneously demanded greater commitment. The increased academic expectations of the National Certificate of Educational Achievement (NCEA), especially at Years 12 and 13, were cited by a number of students as a factor that limited the amount of time that was available for sport and physical activity.

- NCEA decreased my involvement as studies are important for a bright future.
- Year 12, the work has stepped up a lot.
- Year 12 is more demanding – sometimes you need to back off sport and give more attention to school work, it takes a lot of time.

At the same time those who were serious about their sport felt increased pressure to train at a higher level to be successful.

- Year 12 and 13 you get double tension – you need to pay more attention to both school work and sports, studying for exams but at the same time you need to focus on training for teams.
- The passion for sport has meant that it has had an impact on schoolwork. Don’t want to give up involvement which means you leave assignments to the last minute sometimes.
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Other influences working against involvement were socialising and the need to work in paid employment.

Drinking and social activities come in…
Need to work – to pay for petrol and social activities. You also need money to take part in sports, there are fees for tournaments, you have to get to places.

One student summed up the situation clearly:

It gets stressful, between school, sports, work and social life, there’s no time to rest. Not to the point of burning out, though. Sports take time but they keep me going.

One focus group identified a number of specific reasons that they felt acted as barriers to students participating in sport and physical activity in the senior school.

Friends can put you down if a team loses.
Not as cool to be into sports.
Girls get self conscious with guys watching.
Girls get self-conscious if they're overweight.

Like the students there were mixed comments from parents. Generally most identified increased academic pressures as a reason for less involvement while others felt there had been little change:

When she got to her sixth form year [Year 12], school became a lot harder and she had to be careful to balance sport with studies.
In senior school the amount of school work increases, but also, as they move up they get better at what they're doing in sports and there are great opportunities for advancement for skilled players.
Picked up on participation and involvement – enjoyed the social and cultural aspects of being in a team, social contact, making new friendships rugby trips, so it was not just sport.

After leaving secondary school

The Year 12 students were generally confident that they would continue with sport and activity after they had left school (Table 3) with the highest number of responses (37%) occurring in the very confident group. Only 14 (15.5%) indicated that were either not or a little confident that they would continue after leaving school.

Fifty-two written comments were received in total concerning this question. In general they fell into two groups. The smaller group contained students who did not consider they would be active after leaving school. Their comments ranged from a straightforward I'm lazy to more detailed explanations.

Now I go to walks with my Mum and sister but when I go to Otago I will be alone; there won't be cultural functions or organizations I could take part and manage medical studies.
Table 3  How confident do you feel you will continue with sport and activity after leaving school?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A little</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Somewhat</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Confident</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Very confident</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td>100</td>
</tr>
</tbody>
</table>

Year Group = Year 12

The larger group of comments came from students who were confident that they would maintain their involvement in sport and activity. These comments generally related to high levels of enjoyment from participating or having ambitions to be successful athletes. The comments indicated that many students had a love of sport and activity that would be a strong motivator towards continuing:

I love sport and exercise and I will continue to have a gym membership and participate in open dance classes and go skiing.
I have a passion for dance.
I like swimming and see myself swimming for a long time. I just started surf sports and really like it, want to keep doing it.
I wish to go to the Commonwealth Games therefore I will train hard to get there.

Most parents also felt strongly that their children would continue their involvement when they left school:

She will definitely be involved once she leaves school. Physical activity has become a habit. It’s a part of her life.
Yes, she will most definitely continue after college. She enjoys it and is very competitive.

Interestingly, the small number of parents who had other children who had left school reported that this was not necessarily the reality:

Since leaving school they haven’t participated as much [in sport] but would love to. It can be difficult to fit practices in round university.
My son who has left school didn’t play sport for two years after he left because of an injury. But now he plays socially on a Monday night.

For students who had left school the changes in their lives had an impact on the degree to which they maintained an involvement in sport and physical activity. Most who had been active and involved at school maintained some involvement either at competitive level or socially while others struggled to find the inspiration. For many the wide range of
experiences of sport that they enjoyed at school was an encouragement to continue when they had left:

Yes. I was allowed to play a variety of sports at school and so this helped me to continue when I left.

One issue that was mentioned by a number of year 12 students related to the advantage of having relationships with clubs while at school. A number of students mentioned clubs when asked why they were confident they would continue with sport and activity when they left school.

My main sport is cycling and as this is not involved with school I’m very confident I will continue to compete when I leave school.

I play club.

Because I do club sports – mostly boxing.

For students involved in clubs there seemed to be a greater level of confidence around the transition from school. This seems to make intuitive sense but does offer a challenge to schools that pressure students to play in school teams or, as they do in some cases, actually ban them from playing for clubs. Another view of the disadvantages of students only playing for school was offered by one of the representatives of a National Sporting Body who felt strongly that in many ways students are looked after to such a degree in school sports that they are unprepared and disadvantaged when it comes time to make the transition into the “real world”.

For the siblings who had left school it also appeared easier for those who had belonged to clubs and stayed in the area of their school to maintain their involvement:

My club involvement also helped me stay involved.

The transition was made easier by staying in the area and having already had contacts with the club teams.

When asked about the links between the schools and clubs most of the Regional Sports Directors and representatives of Regional Sports Trusts(RST) felt that these linkages were generally poor and needed to be developed further. One representative of a RST commented that:

The links between schools and clubs is not going well. In terms of a grade 10/100. Overall there are only a few examples of strong and sustainable linkages.

While another identified what he saw as one of the major problems:

An issue is the drop-off when kids leave school and enter into the community. Many kids engage themselves in sport at school for social reasons. Many of them have no desire to continue, but enjoy the diverse opportunities offered at school.

Summary
This research indicates that the majority of students did not believe that reaching the three key transition points resulted in a reduction in their involvement in sport or physical activity. Most of the students believed that they either maintained or increased their levels of involvement at each of these three points. A number of reasons were noted as motivating them towards being involved in activities. These included the increased number of opportunities available at secondary school, socialising with friends and the increased demands as sport became more serious. A number of factors were also identified by students that they felt acted as a discouragement towards activity and sport. These included increasing academic pressures, work commitments and opportunities to socialise. It was noted that students were well aware of the conflicting pressures and the need to manage them carefully. In some cases the positive and negative factors were interrelated. An example of this was the need that some students had to earn money to fund their sporting activities which led to them working long hours in paid employment. In general students felt that they would maintain their level of involvement when they left school, although it was found that this did not always occur in reality.

References


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Physical, psychological, and pedagogical characteristics of Finnish physical education

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Abstract

In Finland physical education is obligatory for all students in basic education (grades 1-9). The national curriculum of the Ministry of Education determines that in basic education the students have two hours of physical education weekly. Additionally, in grades 7-9 the students can choose voluntary physical education courses which are determined in local school curricula. After basic education the adolescents may choose to continue their studies in pre-university level vocational school or in upper secondary school (grades 10-12), in which they have two obligatory physical education courses and three voluntary courses within their three academic study years. Physical education courses in upper secondary school are regulated by the national curriculum of the Ministry of Education (National core curriculum for basic education, 2004). According to the national curriculum the central aims of the physical education in basic education are to have a positive impact on student's physical, psychological, and social abilities and well-being, and to guide the students in understanding the importance of exercise to health. Instruction in physical education offers the student skills, knowledge, and experience on the basis of which it will be possible to adopt a physically active way of life. All physical education teachers in secondary school and upper secondary school graduate from the Department of Sport Sciences in the University of Jyväskylä. The most popular sports in grades 1-4 of Finnish basic PE education are skating, Finnish baseball, soccer, athletics, and indoor bandy. In grades 5-9 the most popular sports are Finnish baseball, basketball, athletics, ice-games, and indoor bandy. In the upper secondary school most popular sports are indoor bandy, basketball, muscle endurance training, Finnish baseball, and volleyball.

Keywords: Physical education, Higher education, Schools

General Overview of the Finnish Physical Education System

In Finland school children start school the year they become seven years of age. Physical education is obligatory for all students in Finnish basic education (grades 1-9). The national curriculum of the Ministry of Education determines that in basic education the students have two hours of physical education weekly. Additionally, in grades 7-9 the students can choose voluntary physical education courses which are determined by local school curricula. After basic education, adolescents may choose to continue their studies in pre-university level vocational school or in upper secondary school (grades 10-12), in which they have two obligatory physical education courses and three voluntary courses within their
three academic study years. Physical education courses in upper secondary school are regulated by the national curriculum of the Ministry of Education (National core curriculum for basic education, 2004).

According to the national curriculum the central aims of the physical education in basic education are to have a positive impact on student’s physical, psychological, and social skills and well-being. An additional goal is to guide the students in understanding the importance of exercise to health. Instruction in physical education offers the student skills, knowledge, and experience on the basis of which it will be possible to adopt a physically active way of life (National core curriculum for basic education, 2004).

In grades 1-4 of basic education, physical education must take into account the students’ capabilities and personal development potential. The instruction is conducted playfully, in an encouraging atmosphere, and progresses from basic motor skills towards skills in specific forms of physical activity. The point of departure for instruction in physical education is the students’ activism, and the instruction makes use of their imagination and insights (National core curriculum for basic education, 2004).

In fifth through ninth grades, physical education instruction must make allowances for the differing needs of boys and girls at this stage of development, as well as the students’ differences in growth and development generally. Diversified physical education instruction helps to support the students’ well-being and growth into an independent and community-spirited person, and creates capabilities for the independent pursuit of pastimes. The instruction affords opportunities for exercise experiences and supports the student’s self-expression (National core curriculum for basic education, 2004).

The most popular sports in grades 1-4 of Finnish basic PE education are skating, Finnish baseball, soccer, athletics, and indoor bandy. In grades 5-9 the most popular sports are Finnish baseball, basketball, athletics, ice-games, and indoor bandy. In the upper secondary school most popular sports are indoor bandy, basketball, muscle endurance training, Finnish baseball, and volleyball.

All physical education teachers in secondary school and upper secondary school graduate from the Department of Sport Sciences in the University of Jyväskylä. The mean time for completing the required Masters degree is 5.5 years.

Research in Finnish Physical Education

The Finnish physical education research has long traditions starting few decades ago. The main research areas in Finnish PE research include psychological, physical and pedagogical frameworks. More specifically the mostly studied themes in Finnish PE are physical activity and fitness, didactics and content analysis of the physical education classes, and psychological characteristics of learning and teaching. The purpose of the next section of the article is to give few examples on recent Finnish physical education studies within these main topics.

Physical Activity Research
Research on Finnish students’ physical activity has concentrated on analysing the amount and quality of engagement in physical activities in school and at leisure time. Additionally, some studies have also included inactivity measures. The results of recent studies show that participation rates for a sample of 5,388 Finnish adolescents who participated in vigorous physical activity at least four times a week varied from 43 % for girls and 56 % for boys (Samdal, et al., 2007). Similar findings emerged in Jaakkola et al (2009) study for the sample of 152 13-year-old adolescents. In that study both sexes participated in moderate to vigorous leisure time activity an average of 2-3 hours a week. In the same study the participation rates in sport club activities per week was once a week. Jaakkola et al. (2009) also reported that Finnish adolescents spent 2.5 hours a day on using computers or other electronic media.

Laakso et al. (2008) investigated the trends of leisure time physical activity over 30 years of Finnish 12-18 years-old boys and girls. Participation in organized sport significantly increased from 1977 to 2007 in both genders. The participation rates over the 30 years increased more in the female sample than the male. In both genders participation in informally organized leisure time physical activity decreased from 1977 to 1985 but increased again by 2007. The increase from 2003 to 2007 was significant in organized sport but not in unorganized leisure time physical activity. Laakso et al. (2008) concluded that there is an increasing trend in Finnish adolescents’ leisure time physical activity and participation in organized sport in particular, and that the increase in activity has been greater in girls than boys.

In Finnish PE research an increasing effort has been directed towards the analysis of the relationship between motor skills, fitness, and physical activity/inactivity. The recent study of Jaakkola et al. (2009) revealed that sport club physical activity positively explained the results of the balance and locomotor tests, but not tests of throwing accuracy. Leisure time physical activity and time spent using computer or other electronic media were not statistically significant predictors of any movement skill tests.

Finnish students’ physical activity intensity has also been investigated during PE classes. The study of Jaakkola et al. (2008) for 139 Finnish ninth-grade students (15-year-old revealed that the students mean rate in floorball class 147 beats/min. Jaakkola et al (2008) categorized heart rate data also into four heart rate categories according to the intensity of the exercise. The categories were under 120 beats/min.=light exercise, 120-140 beats/min.=moderate exercise, 140-160 beats/min.=vigorous exercise, and over 160 beats/min.=heavy exercise. No gender differences emerged in mean heart rate during the classes. The results showed that the students’ heart rates were mostly in the highest category (36 % of the class) and in the lowest category the least (19 % of the class).

Research related to the Psychology of Physical Education

The key areas in Finnish psychology research related to physical education context are motivation, motivational climate, and teachers’ socio-emotional skills. During last ten years the psychological characteristics of students and teachers involved in Finnish physical education have received increasing attention.
Jaakkola (2002, 2006) implemented a quasi-experimental study to analyse changes in students’ social-cognitive psychological variables through one academic-year of intervention directed toward increasing task-involvement during physical education lessons. The intervention consisted of weekly consultation meetings with teachers in experimental schools. The participants involved in the experimental group of the study were 178 ninth-grade students, taught by four teachers. The control group consisted of 259 students, taught by five teachers. The results of that study revealed that students in the experimental group minimally increased in self-determined motivation, whereas, the control group decreased their perceptions of self-determined motivation. In addition, after intervention students in the experimental group demonstrated greater task orientation in comparison to the control students. During the intervention students’ perceived physical competence remained the same.

Soini et al. (2006) investigated the association of perceived motivational climate in school PE and PE mark with students’ enjoyment. The participants of the study were 4396 ninth grade (15 – 16 year-old) students being taught by 119 PE teachers, in 261 classes. Soini et al. (2006) study indicated that perceptions of autonomy, social relatedness, and especially task involvement were associated with high enjoyment. Highly ego involving climates were associated with low enjoyment, but only when combined with low task involvement.

Yli-Piipari et al. (2008) implemented a study to investigate students’ anxiety in Finnish physical education. This research was conducted using a sample of 436 6th grade children. The analyses revealed that the students reported relative low levels of anxiety inform their involvement in Finnish physical education. The boys perceived more somatic and cognitive state anxiety than the girls. No gender differences emerged in the worrying factor of the anxiety scale.

The purpose of the Kauko and Klemola (2006) qualitative study was to investigate by which means PE teachers (teach 7 to 9 graders) support students’ social and emotional growth during the PE classes and what kind of experiences they have of this support. Five teachers (three female and two male PE teachers) were interviewed by using a semi- structured approach and the responses then analysed through thematic content analysis of the data.

The results of Kauko and Klemola’s (2006) study revealed that PE teachers believed that they were able to support the students in facing their strengths and weaknesses, regulating emotions, ability to co-operate, peaceful resolution of conflicts and promote integrity and fairness. The teachers’ methods of supporting the students’ social and emotional growth included encouragement, interactive discussions, intervening in unfair situations, modelling expected behaviours and incorporating a variety of pedagogical and didactic means such as creating opportunities for co-operation, using random selections and diversification.

Pedagogical Research

Pedagogical research in Finnish physical education research is concentrated on the content of teaching-learning situations and teachers’ and students’ experiences in PE classes. Typically, the pedagogical research in Finnish PE area has been conducted involving
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teachers and students at school however, additional information has been collected with the Physical Education Teachers Education (PETE) program at the University of Jyväskylä. This detail is used to improve the quality of the Finnish physical education pre-service training programme.

The study of Heikinaro-Johansson et al. (2008a) analysed students’ interest in physical education and the importance of different PE goals and aspects in a teaching-learning situation. The participants of the study were 879 students from 14 middle schools (age 13 to 15 years). The results showed that 80% of all students were enthusiastic in PE classes. 16% of students were physically active only once a week or less, and from that group, 63% were enthusiastic in PE lessons. Additionally, students evaluated the most important factors of PE as those dealing with the teaching-learning process and enjoyment in PE. The girls reported well-being, teaching, and class climate factors as being the most important, whereas the boys reported the physical activity factor as significant in PE.

Heikinaro-Johansson et al. (2008b) also conducted a study to investigate teachers’ behaviour during PE classes. Additionally, their goal was to analyse the association between teacher and student behaviours. Data from eight PE teachers was collected during one ball games lesson and one fitness lesson of each teacher. All 16 PE lessons were videotaped by two cameras, and teacher and student behaviours were analysed using a multidimensional observation program called the Physical Education Analyzing System. The results of the study revealed that teacher behaviour is quite constant and independent from lesson content. The authors concluded that the crucial factors influencing the quality of physical education lessons are personal approach to teaching, the teacher’s behaviour, and the interaction skills of the teacher.

Palomäki and Heikinaro-Johansson (2008) investigated how the pedagogical thinking of pre-service teachers changes throughout a PETE program. The participants in their study were four physical education students whom classroom instruction was videotaped at two different stages; 1) their second-year autumn semester and 2) their one year teacher training practicum as fourth- or fifth-year students. After each videotaped class the students participated in a videotaped interview. The results of Palomäki and Heikinaro-Johansson (2008) suggested that the teacher education program had a positive effect on the pedagogical thinking of pre-service teachers. At the end of the PETE students training, they had learned to think of physical education from the perspective of the students and observe how they respond to instruction and tasks. However, they still had difficulties deciding how to respond effectively to the students’ actions in the classroom. At the end of their training, students were also better able to give justifications to their teaching behaviour and reported that they had more ideas for improving the quality of the class.

Another study of Heikinaro et al (2005) analysed how physical education classes have changed during 20 years in Finland. In this research project altogether 406 PE classes were videotaped and evaluated by the multidimensional observation program Physical Education Analyzing System. The findings indicated that time-on-task did not differ between the early 1980s and 20 years later. At both measurements the students spent approximately half of the PE class time on tasks related to physical skills. During the other 50 per cent of the class the students spent in activities that included getting organized, waiting in turn, and receiving
instruction and feedback. The results also showed that the students had more opportunities to participate in a greater number of tasks in the more recent data collection period.

**Summary**

Physical education continues to sustain an elevated profile within both the school and higher education Finnish curricula. PETE at the University of Jyväskylä remains focused on the preparation of high quality teachers with a deep understanding of best practice physical education and exposure to the role that research plays in improving pedagogy. Research efforts have been directed towards examining a variety of important physical, psychological, and pedagogical aspects of the behaviours of both the student and the teacher in the effective operations of physical education classes. Overall, an on-going commitment by the Finnish government to education in general has allowed for physical education to preserve it place as a critical element in the maintenance of the well-being of young people.

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How current pedagogy methods in games teaching in the UK, Australia and the US have been shaped by historical, socio cultural, environmental and political constraints

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Abstract

Crucial to enhancing the status and quality of games teaching in schools is a developed understanding of the teaching strategies adopted by practitioners. In this paper, we will demonstrate that contemporary games’ teaching is a product of individual, task and environmental constraints (Newell, 1986). More specifically, we will show that current pedagogy in the U.K., Australia and the United States is strongly influenced by historical, socio-cultural environmental and political constraints. In summary, we will aim to answer the question ‘why do teachers teach games the way they do.’ In answering this question, we conclude that teacher educators, who are trying to influence pedagogical practice, must understand these potential constraints and provide appropriate pre-service experiences to give future physical education teachers the knowledge, confidence and ability to adopt a range of teaching styles when they become fully fledged teachers. Essential to this process is the need to enable future practitioners to base their pedagogical practice on a sound understanding of contemporary learning theories of skill acquisition.

Keywords: Non-linear pedagogy, Games, Constraints, Physical education

Introduction

It would seem obvious that the teaching style adopted should fit with the aims of the curricula. However, although recent physical education curriculum and related documents in the UK, US and Australia aim to create performers that function at a high level of cognition, the majority of physical education teachers self report using ‘reproductive’ teaching styles over ‘productive’ styles (Cothran, Kulina, Banville, Choi, Amade-Escot, Mac Phail, Macdonald, Richard, Sarmento, and Kirk 2005). The defining characteristic of these reproductive styles is that the teacher does much of the thinking for the student who reproduces knowledge as opposed to the productive styles which allow students to individually explore problems, make decisions and for new knowledge and movement solutions to emerge. An interesting question is why teachers are continuing to teach in this more traditional way. In the rest of this paper we will show how the historical context of games teaching may have played a significant part in the evolution of a more teacher centred approach at the expense of more student centred approaches to educating children.
The Emergence of Military Drill as part of a formalized education

Militarist physical training exerted a profound and lasting influence on the conduct and content of physical education in Britain, the US and Australia throughout the 19th and early in the 20th century (McIntosh, Dixon, Munrow, and Willetts, 1986; Phillips and Roper, 2006; Van Dalen and Bennett, 1971). The earliest form of physical education in the first government controlled elementary schools of Australia and Britain was commonly referred to as a drill, involving a combination of marching, military manoeuvres and gymnastic exercises (Kirk, 1998). According to McIntosh et al, (1986) physical education was, in some cases, virtually indistinguishable from physical training. Drilling the body was entirely consistent with other school practices that adopted similar methods, such as the mechanistic recitation of times tables and the memorization of spelling and grammar (Kirk, 1998). Drill was an essential part of early public education.

The main purpose of military drilling in Britain was to teach the working –class masses in elementary state schools to ‘follow’ as it taught obedience, discipline, compliance and conformity (Mangan, 2003). The problem of indiscipline among young primary school aged working class children in urban areas in Britain was a major one with many students coming from homes where disorder was common (Mangan, 2003). In the 1870’s, through the introduction of compulsory mass schooling the government presented schools and their teachers with the major challenge of establishing order, control and discipline within these large classes of children (Kirk, 1998). ‘The problem at first was not so much to give instruction as to establish conditions in which instruction could be given’ (Mangan, 2003, p72). (It could be argued that this requirement is still a major constraint on teaching styles in some current schools around the World). Schools, their teachers and above all education authorities were understandably preoccupied with the question of how to gain compliance from potentially truculent pupils, so that the maximum benefit could be extracted from the investment of public money (Kirk, 1998). The efficacy of military practices in establishing order and discipline in large numbers of soldiers seemed transparent to school administrators and subsequently a military form of drilling and exercising was officially sanctioned in English board elementary schools in 1871 as a control and disciplinary measure (Kirk, 2003; Mangan, 2003).

Given the militaristic nature of the physical education content and the desired outcome of precision, control and conformity in behaviour, the way the subject was taught produced a mind-body split. That is, bodies were drilled in the gymnasium and minds were educated in the classrooms (Fowler, 1975). As a result the teaching style in P.E. sessions of this period was typified by one teacher instructing a large group in a comparatively small area using a demonstration then all children would mindlessly follow on command (Van Dalen and Bennett, 1971). Although many modern day P.E. teachers would argue that the current use of similar physical education reproductive teaching styles is not about behavioural control and conformity, this approach perpetuates this mind-body split as it is based on the utilisation of monotonous, mindless repetitive practice through the perceived need to acquire the ubiquitous optimal movement solution. However, while any thinking, freedom or individuality was considered unnecessary and undesirable in the masses, it is deemed very desirable in current physical education practice.
Even though military drilling was recognised as a control and disciplinary measure it was also recognized as a preparatory measure for national defence (Mangan, 2003). Britain’s rival, Germany, had introduced military drill into its physical education curriculum early in the 1800’s producing soldiers with physical supremacy and patriotism and resulting in Germany’s defeat of France in the Franco-Prussian War and Britain wanted the same qualities for it’s citizens (Mangan, 2003).

Schools in Australia also recognised the national defence qualities of drill following the withdrawal of British forces from the colony/dominion (Armour and Kirk, 2008). Without standing armies of professional soldiers, the colonial governments saw schools as convenient training grounds for their volunteer citizen armies, and they introduced military drilling and exercising into schools as the basis for sound military training (Kirk, 1998). This created an entry point for the military to deliver physical education programmes to children in schools.

Many of the instructors used to instruct drill around the turn of the 19th century in British schools were ex-army non commissioned officers (Fowler, 1975). Educationalists criticised their involvement with children as they were ill educated, not qualified to teach, and they bellowed at young children the same way they would enlisted men (Armour and Kirk, 2008; Mangan, 2003). These drill sergeants were therefore often regarded as unwelcome guests on teaching staffs and accorded low status in schools (Fowler, 1975). Physical education (at least in England) had to live with this feeling of inferior academic status by association for a long time (Fowler, 1975; McIntosh et al, 1986). Consequently, this enduring low academic status that originated in Britain and spread to other countries has arguably resulted in the P.E. community feeling the need for constant justification and modification of the subject in order to try to gain a wider acceptance in the education community that the role of physical education extends beyond the physical aspects of education to also include the development of the intellect.

*Games in English Public Schools*

However, the widely held social view was that drill training was not deemed suitable physical education for all British school children during the nineteenth century. The games ethic or preference for team games that germinated in English Public Schools was seen as a more suitable option to drill for the children of the middle and the upper classes. The ‘ruling class’ was expected to lead and make decisions, not follow command and these leadership qualities came from the playing of team games and not drill training (Mangan, 2003; McIntosh et al, 1986). Yet these team games were rarely thought of as physical education as they were valued more highly both by boys and school masters for developing character building qualities such as courage, loyalty, team spirit and sportsmanship rather than the mere physical effects which they had (McIntosh et al, 1986). An example of the significance of the character building qualities of Public School games was the powerful concept of the ‘spirit of the game’, exemplified by the absence of referees and the ‘penalty kick’ in ‘soccer’ for many years (McIntosh et al, 1986). To instill these educational qualities in young gentlemen, a change needed to be made to the direct, formal teaching style that was used to teach the working class to follow.
Hence, the teaching and organisation of games in English public schools was in stark contrast to the direct and formal style used to instruct drill. The organisation of games was originally devised and imposed by the boys not the masters (McIntosh et al, 1986). This essential feature of supervision of boys by other boys in games and sports was seen as central to the production of leaders in many spheres of life (McIntosh et al, 1986). This tradition of self-government in games explains too the attitude which was adopted in coaching and instruction. Staff with sporting prowess were sought and hired to teach in the classroom but their primary task was to act as ‘games masters’ and help with school games. Still, however, boys organised their own games (McIntosh et al, 1986). This approach was truly pupil-centred and allowed students to play games with individual expression and encouraged them to individually develop skill and make decisions without the dominant role of a teacher thinking for them and telling them what to do.

The games ethic in Australia was strongly influenced by the British educational system and the associated character building qualities of participation in games (Kirk, 1998; Van Dalen and Bennett, 1971; Mechikoff and Estes, 2002). The US product however evolved into a contrast of the British system. Even though the character-building dimensions of the games ethic were initially important, team games and sports developed into a highly competitive system in the US schools and universities. The greater importance placed on winning led to the teaching of games being dominated by professional coaches and interscholastic sport eventually growing into massive industries that raised large amounts of revenue for their institutions (Mechikoff and Estes, 2002; Van Dalen and Bennett, 1971).

Games in Government Schools

The introduction of games into physical education in British government schools was not initially as successful as it was in the Public Schools. In 1906 organised team games received recognition as a possible means of physical education in elementary and secondary state-aided schools and were officially allowed by the Board to be a suitable alternative to the earlier government imposed Swedish gymnastics system introduced towards the end of the 19th century (see below) (McIntosh et al, 1986). However, a barrier to the introduction of games was the fact that the working class education system did not typically have playing fields or teaching expertise in games, and many schools did not have the opportunity or desire to expose children to the perceived benefits of game playing (Phillips and Roper, 2006). Compulsory military drill and gymnastics were the alternative physical education solutions (Walvin, 1978). In the government schools that did incorporate games into physical education, there was almost a complete absence of teaching methods as the program was based on play (Van Dalen and Bennett, 1971). Therefore, the majority of children attending government schools were not formally taught games in physical education.

Games were mainly played recreationally by children attending government schools. Many elementary schoolboys and girls were given opportunities to take part in games and sports through the initiative and voluntary work of devoted teachers outside the set curriculum (McIntosh et al, 1986). Games were also played in the lunch breaks at some schools fortunate to have a playground, while informal backyard games were played on the streets by many poor children living in overcrowded quarters (Walvin, 1978). At this point games and physical education were separate entities for the majority of students attending
How current pedagogy methods in games teaching in the UK, Australia and the US have been shaped by government schools, thus freeing games playing from the rigid teaching style of previous forms of physical education such as drill and gymnastics and perpetuating the freedom and encouragement of individual skill development.

The influence of gymnastics systems on games teaching (Part 1)

At the end of the 19th century, physical education in the US, Australia and Britain moved steadily away from military drill towards gymnastics “systems” originating from Germany, Sweden and Denmark (Phillips and Roper, 2006). Two of these systems reached great prominence for several decades after 1900. Friedrich Jahn’s German system, based on apparatus was adopted by the US and Pehr Henrik Ling’s Swedish system based on a rigid programme of routine calisthenics with little apparatus was adopted by Britain and Australia (Van Dalen and Bennett, 1971; McIntosh et al, 1986). Even though the content of physical education was changing from military drill and calisthenics to gymnastics the same teaching style implemented for control, discipline and as a preparatory measure for national defence was still used. While not as strongly militaristic as previous programs, the two major gymnastics systems were based on instruction by imitation with personal demonstration and all children simultaneously copying upon command (Metzler, 2005). This exemplified the reproductive teaching philosophy of education.

Impact of World War II

Physical education was inevitably affected by World War II and the military emphasis shaped the subject to help meet different needs. ‘Fitness for service’ (military) became a slogan for all, signifying the importance of the conditioning of youth for the war effort (McIntosh et al, 1986, p219). A daily programme of physical education was recommended and implemented in many countries during World War II (McIntosh et al, 1986). In the US, mass calisthenics were commonly used in daily physical education, not only for their conditioning value but also because they developed a quick response to command (Van Dalen and Bennett, 1971). This preparation for the physical demands of war was similar to the earlier version of military drill.

Games in physical education flourished during and after World War II. With the emphasis on physical training, the requirement in many countries was for governments or local authorities to provide adequate facilities for physical training. This resulted in the building of gymnasia and the laying out of playing fields at schools. The availability of these facilities was a key factor in the adoption of physical education as a required subject in the curriculum of many countries, and the subsequent growth of games and sports in the years following the war (McIntosh et al, 1986).

The spread of national games around the world were the direct result of war. When countries were occupied by other countries they brought their national games with them and some were accepted and spread and became a regular feature of physical education (McIntosh et al, 1986).

The influence of gymnastics on games teaching (Part 2)

One particular gymnastics programme that denoted a revolutionary change of teaching methods in physical education from pre Second World War days was developed in
English schools and imported to the US and Australia. “Educational Gymnastics” initially evolved from Rudolf von Laban’s introduction of Modern Dance to women elementary physical education and dance teachers in England in the 1930’s (Fowler, 1975). This form of gymnastics was also the result of the significant impact of the introduction of combat and commando training by female teachers into British primary schools in 1943 (McIntosh et al, 1986). The creativity of Modern Dance and the variety and the unknown potential of obstacles such as logs, ropes and nets demanded a new teaching technique to the uniform command style used in previous gymnastics activities.

The Educational gymnastics approach led to significant changes in the way that teachers taught physical education. It provided an environment where primary school children could be encouraged to learn through exploration in an informal structured setting (Stirrat, 1972). The emphasis was on self discovery and individual problem solving, rather than teacher direction (Frostig and Maslow, 1970). Educational gymnastics was distinguishable in that the teacher used their natural conversational speaking voice instead of formal commands, the whistle was eliminated as a means of gaining control, there were few demonstrations, and the teacher becomes a “guider” rather than a “director” of the learning experience of each child providing the task, but putting the onus on the children to solve the problem (Kirchner, 1970). This new gymnastics teaching style demonstrated a move away from formal and direct teaching instruction used with the Swedish gymnastics system to a more student centred approach.

Ironically, just as educational gymnastics became established in the early 1950’s in Britain, men began to enter the physical education profession in large numbers. They didn’t like educational gymnastics, and championed instead a form of physical education based on sports, games and fitness activities (McIntosh et al, 1986). Consequently, by the end of the 1960’s the male form of physical education was widespread and dominant (Kirk, 2003).

Education Gymnastics and its Influence on Games Teaching

The general shift in society from a state of conformity in the 1950’s to the intense individuality and rebellion of the younger generation of the 1960’s and 1970’s affected everything from hair styles, music and dress to morals and education. Long hair, drugs, liberal sexual attitudes, anti war protests and mini skirts were all signs of this 60’s rebellion and rejection of conformity. Within education there was a momentous shift of attention from the environment to the individual (Van Dalen and Bennett, 1971). This change in teaching method from students being told what to do to finding out for themselves owed much to the educational philosophies of John Dewey (McIntosh et al, 1986). Dewey considered that play was a valuable activity that integrated mind and body, thus justifying it’s educational benefits (Mechikoff and Estes, 2002). As would be expected, the teaching of physical education was influenced by the present mood of the times, and this was reflected in changes in teaching styles.

Specifically, the use of more contemporary teaching styles was reflected by the introduction in 1966 of arguably the most influential writing on physical education pedagogy internationally, that is, Mosston’s Spectrum of Teaching Styles. The development of the spectrum by Mosston (and subsequently in association with Ashworth), conceptualized a unified series of teaching styles specific to physical education that had as its focus aim of
helping teachers progress from strongly teacher-centered to strongly student-centered approaches (Metzler, 2005). The ultimate goal was to help facilitate the development of independent, autonomous learners (ref). Thus, Mosston was challenging physical education teachers to move away from the direct teaching style across all components of physical education not just gymnastics.

This individual, student centred focus permeated into the teaching of games. Even though games had been a part of a changing physical education curriculum, games teaching methods had remained mostly rigid and strongly teacher-directed up until the 1960’s in the US, Britain and Australia, with teacher-centered instructional approaches that emphasized drill, repetition, and adherence to correct technique continued to be the norm for games teaching (Byra, 2006; Van Dalen and Bennett, 1971). One reason for this resistance to change was thought to be primarily due to many schools with very large classes requiring techniques for mass instruction (but we would also point to the strong tradition of more teacher-centred approaches as we have discussed previously). In the 1960’s, however, new games teaching styles began to emerge in schools, ones that invited greater student decision making and interactions between teacher and students as well as among students (Byra, 2006; Van Dalen and Bennett, 1971). Mauldon and Redfern (1969) advocated for an approach to the teaching of games that was aligned with Educational Gymnastics. This approach brought games teaching into line with other aspects of the curriculum putting the students at the centre of the learning process and encouraging them to individually develop thinking skills through experimentation with apparatus and rules to invent “games” and solve problems through exploration and discovery.

Building upon this notion of the player at the centre of the learning process was the Teaching Games for Understanding (TGfU) model developed by Bunker and Thorpe (1982). Since its inception this approach has subsequently gained worldwide popularity. TGfU and its derivatives shifted the emphasis from a technique based approach to a more student-based approach to solving problems in modified games. The teacher emphasis in TGfU was more to help players to develop understanding of how to solve game problems via the use of questioning rather than by instruction. Teaching games for understanding (TGfU) has gained worldwide popularity since its inception. It could be argued that teaching styles had come the full circle since the freedom of expression and emphasis on play on the streets, the school playground and on the playing fields of English public schools to the conformity and decomposition of skill drills for games and back to the encouragement of individual expression of the TGfU approach. However, it is worth pointing out that TGfU is more than just playing games and the teacher needs to carefully design learning activities based on the needs of the children.

Teaching games from this perspective requires a recognition that the role of physical education extends beyond the physical aspects of education to intellectual aspects, particularly its potential in developing decision makers (Griffin and Sheehy, 2004). This is a far cry from the role of early physical education teaching of drilling and calisthenics that discouraged variability and critical interpretation on the part of the child. In contrast, this more modern approach acknowledges that the games player needs to be able to make sense of patterns of play and to select field or court positions and movements appropriate to the phase of the game and the multiple configurations of other players (Kirk, 2001). To do this
good games players need to take a level of responsibility for their own learning that was entirely absent in drilling and exercising and teachers need to develop learning experiences that develop the thinking performer. A criticism of the TGfU approach is that teachers often simply let children play games and do not teach. Recently, contemporary motor learning researchers have demonstrated that the TGfU approach can be enhanced by basing games design on principles of non-linear pedagogy (Chow, Davids, Button, Renshaw, Shuttleworth, & Uehara, 2009). One of the key principles of non-linear pedagogy, derived from a constraints-based motor learning approach, is its emphasis on functional movement variability as individual learners find novel movement solutions to problems in team games. This aspect of modern skill acquisition theory fits well with a student-centred learning approach. This fusion of practice and theory has exciting potential for the future of games teaching.

Task Constraints: Teaching games and the demands of the modern curriculum

Across the world, recent government publications, national standards, professional bodies and curriculum documents have recognised the role of thinking skills in physical education. In the UK the National Curriculum Physical Education (NCPE), the NASPE’s (National Association for Sport and Physical Education) in the US and the Queensland Physical Education Senior Syllabus incorporate outcomes in all three of the major domains of learning: psychomotor, cognitive, and affective in their definition of a physically educated person (Byra, 2006; Mawer, 1999; Metzler, 2005; Queensland Studies Authority, 2004). To meet the desired outcomes across all three domains, as well as developing thinking and decision making skills within the learner, teachers need to employ a range of teaching styles in their day to day teaching. However, despite these significant physical education curriculum changes and innovations, research has shown that the majority of physical education teachers have not changed the way they teach. Various research studies in the UK and the US using self report methodologies have shown that physical education teachers in these countries generally use more direct, formal, teacher-centred than informal student-centred teaching approaches (Mawer, 1999; Kirk, 2005; Capel, 2005; Kulinna and Cothran, 2003; Cothran and Kulinna, 2008). Cothran et al, (2005) further investigated the use of teaching styles internationally and found that although teachers worldwide reported using a wide variety of styles, the reproduction styles mentioned above seemed to be the dominant style utilized. This is clearly a major issue for teachers as the reproductive style limits the involvement of the learner to imitation and limits their opportunities to solve problems and make decisions in order to become intelligent, thinking games performers (Renshaw & Clancy, 2009).

Many reasons for lack of change in teaching styles have been suggested in the literature. One suggestion is that teaching styles are influenced by the teacher’s previous experiences in their physical education lessons and as games players in competitive sports teams would most likely have been predominantly via reproductive teaching styles leading to a lack of experience with and exposure to student-centred styles (White, 1998 cited in Kulinna et al, 2003; Green, 2000). Consequently, teachers do not have the confidence in the ability of these new styles in meeting different educational goals (Cothran et al, 2005). Another possible reason is the perception that more structured sessions are necessary as a behavioral management strategy. The reproductive style is a very effective means of
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managing classes of children as students are all engaged in the same task and producing
similar outcomes with these styles (Metzler, 2000). The implication of this comment is that
lessons where pupils are allowed the freedom to make their own choices will lead to poor
behaviour. However, no evidence has been provided in support of this viewpoint and there is
a need for empirical research to examine the issue. A further suggested reason for the ridged
adherence to more teacher-directed approaches was the need to meet course requirements of
exam syllabi and by pressure on teachers in terms of general workload (Thorburn and

Conclusion

In this paper we have shown that current teaching methods in physical education and
games have been shaped by many interacting historical, socio-cultural, environmental,
political and task constraints. This has resulted in many teachers adopting a dominant
reproductive and direct instructional style. Teaching style is an important factor for pupils’
learning and the decisions on which style to employ should be based on selecting the most
appropriate styles to meet the desired learning outcomes/objectives. Clearly, there are a
number of potential barriers to changing teacher’s pedagogical practice and it is incumbent
on teacher educators to identify these factors and provide appropriate pre-service experiences
that give future physical education teachers the knowledge, confidence and ability to adopt a
range of teaching styles when they become fully fledged teachers. Essential to this process is
the need to enable future practitioners to base their pedagogical practice on a sound
understanding of contemporary learning theories of skill acquisition. In other words teachers
must understand how the learner learns. Perhaps, at the same time, there is a need to target
the writers and designers of school text books, and syllabi documents ensuring that teachers
are not constrained by out of date understanding of theories of skill acquisition.

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Sport education as a curriculum model for boys’ personal and social development

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Abstract

This paper presents an iteration of the Sport Education (SE) curriculum model for sport teaching in physical education (Siedentop, 1994; Siedentop, Hastie & van der Mars, 2004) which emerged as a ‘boys education’ project during the application of the Sport Education model in a Year 6/7 primary school physical education class (Pill, 2008). This paper discusses the pedagogical features and elements of the Sport Education model that situated it as an appropriate context through which to teach personal and social skill development. While the Sport Education model has been considered as a school social behaviour intervention for at risk adolescent youth (Hastie & Sharpe, 1999) and it has been presented as a model for the development of social responsibility (Hastie & Buchanan, 2000), there is limited literature presenting it as a curriculum model expressly for the purpose of personal and social skill development in Australian schools. Specifically, Sport Education will be considered as a model useful in improving key educational outcomes for boys in the primary band (Years 3-5) (DECS, 2008) of schooling. The Sport Education ‘Boys Education Project’ curriculum initiated in one primary school is outlined, findings of the initial trial presented, and a research agenda for Sport Education to realise its potential as a curriculum for personal and social skill development will be suggested along with research questions that would help to validate this potential.

Keywords: Sport education, Boys education, Personal and social skills

Introduction

This paper presents an iteration of the Sport Education (SE) curriculum model for sport teaching in physical education (Siedentop, 1994; Siedentop, Hastie & van der Mars, 2004) which emerged as a ‘boys education’ project during the application of the SE model in a Year 6/7 primary school physical education class (Pill, 2008). Observation of enhanced personal and social skill development, engagement and motivation of previously marginalised and socially isolated students (Pill, 2008) in physical education during the Year 6/7 SE initiative by the school leadership team led to discussions with the physical education teacher about the potential of SE for the deliberate teaching of personal and social skills with boys. Subsequently, the school developed a SE iteration for use with vertical groupings of Year 2,3,4 and 5 boys for the explicit development and maturation of personal and social skills.
Historically and ideologically, there would appear to be strong support for the role of team games in promoting pupils’ socio-moral development (Theodoulides & Armour, 2001). While the SE model has been considered as a school social behaviour intervention for at risk adolescent youth (Hastie & Sharpe, 1999) and it has been presented as a model for the development of social responsibility (Hastie & Buchanan, 2000), there is limited literature presenting SE as a curriculum model expressly for the purpose of personal and social skill development in Australian schools.

Studies that have focused on SE have tended to reference but not foreground the potential of SE for personal and social skill development, most likely because a physical education program that places a primary emphasis on students socio-moral learning would need to be accompanied by a significant change in thinking by many physical education teachers (Theodoulides & Armour, 2001). Physical education teachers traditionally foregrounded sport skill development (Brooker et al 2000; Light, 2003; Light & Georgakis, 2005b; Alexander, 2008). This is not surprising as sport tends to be the “dominant discourse” of physical education, and it occupies a “privileged position” in many physical education programs (Penney & Evans, 2003, p. 126/7). Although alternative sport in physical education curriculum constructions have been presented in physical education academic discussion little has changed in the curriculum focus, planning and teaching of sport in Australian school physical education (Light, 2003; Light & Georgakis, 2005a; Light & Georgakis, 2007; Alexander, 2008). The SE model iteration to be outlined in this paper demonstrates the potential and possibilities for the SE model to be applied to learning personal and social skills through sport. Personal and social skill development is often presented as one of the outcomes of physical education, but to meet this potential instructional processes (Mohr et al., 2006, p.19) and curriculum intention must be focussed on teaching and constructing learning environments through which this is foregrounded.

It has been argued that further development of the SE model is needed if it is to realise its potential (Penney et al., 2002). Additionally, research which examines physical education and sports claims to teach socio-moral development through team games within physical education is also necessary to validate its claims in this area (Theodoulides & Armour, 2001, p.19). A proactive approach to promoting the potential of physical education and sport curriculum which contributes to the development of personal and social skills as an element of ‘citizenship education’ is also suggested (Penney et al., 2005).

A SE iteration constructed for student personal and social skill development addresses these challenges. The SE model was applied in this instance to a ‘boys education’ initiative already underway within the school. This initiative emerged from staff and parental concerns about the social interaction of boys within and across the year levels at play time. It is noted in the literature that concerns about students’ problem behaviours has led to increased interest in positive personal and social development (Fraser-Thomas, Cote, & Deakin, 2005) in schools. Physical activity, such as sport, is one avenue that has a potentially positive role to play as it is commonly viewed as an integral part of a person’s optimal social development and well-being (Wuest & Bucher, 2003; DECS, 2005). Importantly, this conceptualisation of well-being is not limited to physical development, but also includes the areas of students’ personal, social and moral development (Bailey, 2006; Fraser-Thomas et al., 2005; Hopper, Grey, & Maude, 2000; Mohr, Townsend, & Pritchard, 2006).
The personal, social and moral development of students is emphasised as a central concern of all schools within the South Australian Curriculum Standards and Accountability (SACSA) framework through the Essential Learnings recognised as ‘Identity’ and ‘Interdependence’ (Table 1). Physical Education has a primary role in the realisation of this educational agenda, emphasised by the inclusion of the ‘Personal and Social Development’ Strand within the Health and Physical Education Curriculum. This strand highlights the importance of students working in collaborative environments and the provision of opportunities where students can foster an understanding of self and group identity in conjunction with self efficacy;

“Personal and social development focuses on children’s increasing skills and knowledge, and changing attitudes and values, which assist the understanding of ‘self’ and ‘self and others’ as they each grow and develop, build a positive self-concept and establish relationships with others across diverse groups in the world around them. An integral dimension of this strand is generating an understanding of the nature and importance of individual, group, team and community identity and the ability to work cooperatively”

(HPE Personal and Social Development Strand, DECS, 2008).

Table 1. Identity and Interdependence Essential Learnings (DECS, 2008).

<table>
<thead>
<tr>
<th>Identity</th>
<th>The purpose</th>
<th>This means</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>To assist learners to achieve a sense of their own current and emerging identity.</td>
<td>Learners developing an understanding of themselves, of the groups to which they belong, and of other members of their community.</td>
</tr>
<tr>
<td></td>
<td>To develop learners who will take action to shape their own personal and group relationships.</td>
<td>Learners coming to an understanding of the social construction of identities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learners developing the capacity to relate effectively to others and to resist the pressure of negative stereotyping.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learners achieving a sense of their own current and emerging identities.</td>
</tr>
<tr>
<td>Interdependence</td>
<td>To develop learners who recognise that their own lives and lifestyles are inseparable from wider systems.</td>
<td>Learners coming to an understanding of cultural and global connections, patterns and evolutions.</td>
</tr>
<tr>
<td></td>
<td>To develop learners who are active in shaping local and global communities.</td>
<td>Learners coming to an understanding of what is needed for sustainable social and physical environments.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learners cooperating to achieve agreed outcomes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learners acting to benefit their communities.</td>
</tr>
</tbody>
</table>
While the Essential Learnings “are understandings, dispositions and capabilities which are developed through the Learning Areas” (DECS, 2008) teachers of physical education have a primary role in the explicit teaching of curriculum directed at the development of the personal and social skills encompassed in these Essential Learnings as the Personal and Social Skill Development Strand is part of the Health and Physical Education Curriculum.

Appropriately, the physical education setting held great appeal for implementing social behaviour learning for boys. The SE model appealed as it presented as containing a potential to extend “students’ knowledge and understanding of dominant attitudes, beliefs and values within physical education, sport, schools and society and the ways in which these shape (and constrain) individual lives” (Penney, Clarke, & Quill, 2005, p.94). As a result, SE came to be seen by the school leadership group as being more than simply a curriculum model for teaching sport, rather it seemed “an important vehicle for citizenship education” (Penney, Clarke et al., 2005, p.84) and as such, an appropriate medium through which to trial a ‘boys education’ initiative.

The purpose of this paper is to not explain the SE model’s theory in detail other than it pertains to the particularities of this iteration’s use as the theory and features are well documented in other literature (specifically, see Siedentop, 1994 & 1998; Siedentop, et al., 2004). Rather, the aim of this paper is to highlight and provide credence for SE as a model useful in improving key educational outcomes for boys in the primary band (Years 3-5) (DECS, 2008) of schooling. While there is evidence in the literature to suggest that the SE model can be a curriculum tool for the personal and social development of students (Alexander & Luckman, 2001; Hastie & Sharpe, 1999), most of this research is in relation to middle and secondary school aged pupils and was an subsidiary outcome arising from the use of the SE model.

Whilst it is reported that SE programs are effective with primary years grades (Holland, 2006), literature that focuses specifically on SE and its role in primary school physical education settings for boys is limited. It is hoped that this paper stimulates further exploration of SE’s potential for personal and social development within primary school settings so that the SE model’s potential in this area can be more fully realised. Therefore, this paper is likely to be of interest to teachers, both experienced and inexperienced with the use of SE, as well as those interested in contexts constructed to achieve positive educational outcomes for male students.

Why is the Sport Education model suited to boys’ education?

“Many boys enjoy school and are successful in their studies. However, it is also clear that many others are underachieving against a range of key educational areas and broader social indicators” (Australian Government, 2008). This lack of connectedness can lead to disruptive, antisocial behaviour, resulting in male pupils receiving more reprimands, compared with their female counterparts, and therefore being more likely to be subject to disciplinary actions during schooling (Creswell, Rowe & Withers, 2002; Lines & Stidder, 2003). Promising initiatives which address boys educational issues in a way that values boys without glamorizing their destructive behaviours (Browne & Fletcher, 1995) is an important educational strategy. Unfortunately, traditional forms of teaching sport in physical education
have often reinforced a negative environment and set of behaviours for boys as the teaching has tended to emphasis competitive contexts, constructed such that they are not always conducive to positive personal and social development (Hastie & Bucchanan, 2000).

The Inquiry into Boys Education (Australian Government, 2002) noted increasing community concern for boys’ education resulting from observation that boys are not achieving well enough in many areas of education. Boys are often portrayed in a problematic manner with their specific qualities, their tasks of development and their problems given too little attention (Ykema, 2000, p.12). The construction of “environments that are interesting and relevant to them” is a strategy to enhance educational outcomes for boys. (Keddie & Mills, 2007, p.49). Many boys like to have “competition, humour, involvement, movement and responsibility in all activities” (Hodgetts, 2008, p.5). As these are all elements postulated as features of the SE experience it appeals as a curriculum model suited as a medium through which to teach personal and social skills to boys. The idea of student ownership is also central to the success of the SE model (Siedentop et al., 2004) as “students’ learning is more effective and rewarding if they have a ‘voice’ in and ownership of aspects of the curriculum and the teaching/learning process” (Hunter & Park, 2005, p.164). This is important when considering how boys relate to education “as disengaged students often feel that they have no voice” (Keddie & Mills, 2007, p.62) and presents a further rationale as to the appropriateness of the application of the SE model for boys education.

Why is the Sport Education model suited to personal and social skill development teaching?

Focussing on interpersonal and intrapersonal intelligences is recognised as an important strategy in the education of boys (Munns et al., 2006). SE seems a logical and beneficial model through which to do this as this sport curriculum model emphasises personal and social skill development (Siedentop et al., 2004). It potentially allows students to take greater responsibility for their own learning whilst actively supporting the learning of others (Siedentop et al., 2004). In SE units of work students are members of the same team for the duration of the season, with the aim to promote cooperative learning and the development of inter-personal and social skills through team membership, situated to create a sense of belonging and affiliation (Siedentop, 1994). Students involved in SE units of work have highlighted that they enjoy and see value in the permanent nature of their team membership (Clarke & Quill, 2003; Hastie, 1998; MacPhail, Kirk, & Kinchin, 2004). This opportunity to connect meaningfully with their peers may assist students to feel supported in their learning in physical education (Azzarito & Ennis, 2003). The extended connection provided through the stability of the team association provides the potential for the SE model to be used to promote personal and social development objectives. The importance of extended team association as a strategy for personal and social development concurs with the suggestion that students generally must experience long-term reciprocal relationships with others for affiliation to occur (Bronfenbrenner, 1999). Team membership in SE units of work therefore provides a context through which opportunities to “interact, resolve conflict, enjoy other’s company, and demonstrate a growth as a team” can occur (Mohr et al., 2006, p.23).

Importantly, these feelings are not limited to the highly skilled students, “low skilled students began to affiliate with their team and take responsibility for their own performance” (Ennis et al., 1999, p.282). Notably, in the SE context it has been illustrated that students feel
responsible to their team and support other team members to ensure team success (Ennis et al., 1999). The potential for students to develop respect for themselves and for others, with both high and low skilled students commonly viewing their team as a ‘family’, is reported with SE units of work (Ennis et al., 1999).

The specific team roles students are expected to assume responsibility for within a SE unit of work also provide opportunities for empowering students to take greater responsibility for their own learning and to actively support the learning of others (Penney et al., 2005). The improvement in interpersonal relationships and personal responsibility developed through participation in sport experiences in SE units of work have the potential to continue into other aspects of the students’ daily interactions around the school (Pill, 2008). This is one of the ‘ambitious goals’ of the SE model (Siedentop et al., 2004).

**Methodology**

The study from which details of this SE boys’ education initiative emerged was designed as a local ‘teaching experiment’ (Hastie & Curtner-Smith, 2006). This is appropriate as curriculum development in school settings is contextual and informed by its implementation (Alexander & Penny, 2005). A teaching experiment is a form of qualitative research in the ‘pedagogue tradition’ (Bishop, 1992) as it involves a sequence of teaching episodes, a method of recording what transpires in each episode and, a retrospective analysis of the data collected. Studies covered by the pedagogue tradition are exploratory in nature and concerned with classroom practicalities (Pill, 2008). Research in the pedagogue tradition seeks similar outcomes to action research as it encompasses the systematic study of the knowledge constructed, awareness raised and practice of individuals in the context of a local setting. The aim is better understanding and greater insights about a situation or program (Thomas & Nelson, 2001).

The information about the SE boys education project was elicited during a ‘person to person’ open ended conversational style interview with the physical education teacher after the Year 6/7 class SE trial. This type of interview is a common form of data collection in qualitative research (Thomas & Nelson, 2001) and permits further consideration of the themes which are generated from the analysis of other sources. Qualitative methodology is particularly relevant when researching collaboratively with teachers. Teachers tend to find this approach more applicable than other approaches as they “see themselves in it” (Nickson, 2000, p.176).

**Sport Education Boys Education Initiative**

Acting on the frequency and dominance of referral of boys to the Reflect-Plan-Act (RPA) room for inappropriate yard behaviour, teacher reports of their observation of students interpersonal associations in the yard, and parental concerns expressed directly to teachers the school initiated an investigation into the breadth and frequency of bullying and anti-social behaviours of students in the yard at play time. Information about the type and frequency of bullying and anti-social behaviour experienced by students was gathered through a student survey. 164 students (95 male & 69 female) responded to the survey which was sent home to
all students and their families in Years 2-5. The survey data analysis generated the following themes;

- Boys reported more instances of bullying than girls.
- The highest concern about bullying was expressed at Year 2 and 3
- The majority of bullying occurred in the yard
- Most of the bullying was verbal in nature.
- Most of the bullying related to access to participation in games and to play space.

The Deputy Principal had observed the changes in behaviour of previously marginalised and disinclined students in physical education that were occurring during a SE initiative in the Year 6/7 class. Conversation about the observed changes in behaviour with the physical education teacher and Principal moved to speculation about the potential of the SE model as a construction for the explicit teaching of personal and social skills with boys.

From this initial conversation the idea of applying the SE model to boys personal and social skill development evolved into a trial. Parents and guardians of all boys in Years 2-5 were informed of the ‘Boys Education Project’ and the reasons for its implementation via letter. At this time parents and guardians had the option of withdrawing their children from SE Boys Education project.

The boys in Years 2-5 were vertical grouped across the year levels. Each group consisted of 4 boys from each of the year levels, selected by the Deputy Principal and the physical education teacher so that each group contained a mixture of personalities and social maturity. The first trial group were released from normal lessons for one 45 minute lesson per week to participate in the SE Boys Education class for 8 weeks of a school term. Each 45 minute lesson contained a mixture of theory and practical experiences. The theory elements specifically addressed the personal and social skills that would be needed for the group to construct and participate in a 5 a side soccer competition (refer Table 2).

The modification of soccer to 5 a side is consistent with the “small group learning” pedagogical element of the SE model. This construction aims at maximising active participation and learning (Siedentop et al., 2004 p.25). ‘5 a side soccer’ was chosen as the initial sport form because of the large number of boys playing soccer for the school and the subsequently “strong soccer culture” (physical education teacher comment). Role responsibility was another SE pedagogical element important in the construction of environment capable of highlighting and developing personal and group responsibility. Within each team roles were allocated to students by the physical education teacher (see Table 2 Lesson 2 for the role responsibilities allocated to students and at which year level). The goal of the group was to develop the skills required to successfully self administer and participate in a round robin 5 a side soccer’ competition. Formal competition is a pedagogical element of SE that creates contextual meaning for students as this is a feature of sport participation in school co-curricular and community sport settings. The SE unit of work concluded with a graduation ceremony that included the presentation of ‘graduation
certificates’ and affirmation of the skills learnt and individual achievements. The importance of the SE experience leading to a culminating event where individual and team improvements can be recognised is part of the “nature of sport” (Siedentop, et al, 2004, p.6) which provides the inherent motivation to try your best for yourself and for your team.

**Table 2** Sport Education Boys Education Project Curriculum Outline

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Activity</th>
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| **Lesson 1** | The structure of the program is introduced and explained  
Boys are surveyed on their feelings about group work; including what they like about working in groups, what they dislike, what they believe their group work strengths and weaknesses are.  
The teams are established through a process negotiated and supervised by the PE teacher.  
The nature of positive and effective teams is workshopped. |
| **Lesson 2** | Teams decide on team names, motto and colours.  
Roles of team members explained by the teacher and allocated by year level. ie.  
Y2= equipment manager; y3=team captain; Y4= umpire; Y5= team coach  
Teams are taught how to take a warm up and the team coach is then responsible for the team warm up each week from this point.  
The nature of working together to be an effective soccer team is workshopped. |
| **Lesson 3** | Players are instructed in refereeing soccer and it is contexted by discussion about effective decision making and respect for officials.  
Each team umpire officiates the games (with mentoring from the PE teacher) when their team is the duty team from this lesson onwards. |
| **Lesson 4** | Conflict avoidance and dispute resolution is workshopped  
Assertive vs aggressive behaviour and communication is workshopped  
How to mediate joining a game and sharing play space so that all have equal opportunity and access to play is workshopped  
Review of the personal and social skills learnt is conducted. |

Completion of the boy’s education program is celebrated with a graduation ceremony and the awarding of graduate certificates.

It has previously been reported that the social system constructed by the SE model can engender higher levels of peer support for learning. Observation that students found that helping one another for the sake of team success was preferable to pursuing individual rewards and interests within PE lessons have been presented (Carlson & Hastie, 1997). The observations of the physical education teacher involved in the delivery of this SE iteration for the personal and social skill development of boys is supportive of the claims of the SE model in the areas of personal and social skill development, particularly as it pertains to team
affiliation and the development of personal accountability through the team role responsibility requirements. In this SE boys’ education initiative opportunities for personal and social development, including leadership skills and cooperation, were considered to be facilitated by the pedagogical elements particular to the SE model.

The initial analysis of the SE Boys Education initiative has been positive. “The Deputy Principal has reported a reduction in referrals to the RPA room during play time” (physical education teacher comment). Teachers have reported observation of enhanced harmony between the year levels with the students involved in this initial trial to the physical education teacher, describing the relationships as like a “big brother ~ little brother” situation (physical education teacher comment) with the students of the teams. As an example, the physical education teacher noted that one “Year 4 boy, often in trouble in the yard for uncooperative and disruptive behaviours was observed teaching one the Year 2 boy in his boys education project group how to play soccer in the yard” (physical education teacher comment).

The perceived success of this initial trial of SE for boys personal and social development has resulted in the school leadership team extending the project into a year long engagement which would encompass all boys in Years 2 -5. Further developments being considered include linking a personal and social skills taxonomy (Hellison, 1995) and the introduction of a survey at the beginning and end of each project group to determine the degree to which students perceive that they have developed and improved their personal and social skills. Formally linking the SE boys education curriculum to the relevant Health and Physical Education Personal and Social Development Strand outcomes (DECS, 2008) would also seem a logical next step.

Conclusion

Personal interaction with others, which is an inherent requirement of team games, presents children with a set of complex social problems that they must solve (Lee, 1996). In solving these problems, it is suggested that children are able to develop a wide range of personal qualities. In addition, through cooperating and working together, children can learn social skills, such as listening to others, taking turns and helping other pupils (Theodoulides & Armour, 2001). Sport’s potential as a forum for learning the skills associated with character values such as responsibility, conformity, persistence, risk taking, courage and self control has been forwarded (Kleiber & Kirshnit, 1991). The SE models potential as a context for this type of learning is an intriguing possibility to emerge from this project.

The importance of teaching life skills for the promotion of healthy child and adolescent development is recognised (Papacharisis et al., 2005). This is affirmed by the local curriculum framework which places students’ personal, moral and physical development at the centre of the physical education process (DECS, 2004). Students should acquire the skills to enable them to make and maintain positive relationships and close friendships, so as to be able to work collaboratively in teams. Students should be encouraged to extend their social knowledge and skills to enable them to make and maintain positive relationships and the ability to work collaboratively in teams (DECS, 2008). In order to
achieve these outcomes, teachers must set up specific learning situations that required pupils to develop and utilize a range of complex socio-moral skills (Theodoulides & Armour, 2001). This paper has outlined the SE models potential for the construction of learning contexts for the realisation of these learning outcomes, particularly for boys in the primary years of schooling. It is beyond the scope of this study to track the outcomes of the extended SE boys’ education initiative from students, parents and teachers perspectives. This type of study however, would be particularly valuable in providing further validation of the SE models potential for the deliberate teaching of personal and social skills and the realisation of outcomes related to personal and social curriculum content. Additional research questions that would help to validate SE as a curriculum model for personal and social skill development include:

- Does the SE model contain the same potential for girl’s personal and social skill development?
- Does the SE model contain the same potential for personal and social skill development in co-educational class settings?
- Are the positive attitudes and mutual support that is developed within lessons maintained outside them? How are these measured?
- What needs to be done to provide the SE model with further exposure so it can be incorporated more broadly at both national level and state levels with primary school physical education, as most of the reporting of SE outcomes occurs as a result of trials or research projects in middle and secondary schooling?

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Sport education as a curriculum model for boys’ personal and social development


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Sport education as a curriculum model for boys’ personal and social development

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Sport teaching in physical education: Considering sports literacy

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Abstract

One of the many challenges to teachers wishing to adopt a tactically orientated sport teaching approach is “the switch from traditional didactic teaching to a more dialectic approach” (Bell, 2003, p.13). A tactically orientated approach relies on reflective dialogue prompted by the pedagogy of inquiry. This suggests a model of sport teaching in physical education which is a highly discursive act (Evans, Davies & Penney, 1999). As a discursive act, a ‘tactically orientated’ approach represents a shift from the traditional didactic approach to sport teaching to a ‘committed grammar’ where games and sport become the catalyst for conversations “for the collective development of knowledge through verbalisation” (Light & Fawns, 2002, p.2). This paper will extend the concept of multiliteracies to include sport literacy and explain its relationship to a cognitively situated ‘tactical’ curriculum model for sport teaching in physical education.

Keywords: Physical education, Sport, Knowledge

Introduction

Sport is one of the “major orientating discourses” in the physical education curriculum (Tinning, Macdonald, Wright & Hickey, 2001, p.159) and one of the content areas legitimating the existence of physical education in schools (Williams, 1985 cited in Bailey & Kirk, 2009, p.3). Physical education programs in Australian schools have progressively foregrounded sport and sport related games (Alexander, 2008; Brooker et al., 2000) and sport is the “dominant discourse” (Penney & Evans, 2003, p.126) of many secondary school physical education curriculum’s. Sport “has been and remains an integral aspect of physical education” (Bailey & Kirk, 2009, p.3).

Teachers continue to focus on the refinement of sport specific skills as the core of physical education teaching (Brooker et al., 2000; Light, 2003; Light & Georgakis, 2005a; Alexander, 2008). Despite the emergence of progressive physical education sport teaching approaches the traditional ‘physical education method’ (Metzler, 2005) remains the dominant pedagogy of sport teaching in physical education. Although calls for broader acceptance of innovative sport curriculum models persist little, however, has changed in the curriculum planning and enactment of sport teaching in Australian school physical education (Light, 2003; Light & Georgakis, 2005b; Light & Georgakis, 2007; Alexander, 2008).

The adequacy of the traditional ‘physical education method’ for sport teaching in educational settings has a history of contestation (Mauldon & Redfern, 1969; Findlay, 1982;
Siedentop, 1994; Bunker & Thorpe 1986; Alexander, 2008) and considered problematic for many students learning (Brooker et al., 2000). The contestation is “based on the assumption that school physical education is failing to reach its potential for making an effective educational impact” (Laker, 2003, p.153). A multi activity programming construction with a focus on movement technique reproduction learnt through decontextualised skill drills (Kirk, 2005a) exposes students to lots of different sports and their many associated skills but they are not necessarily afforded the opportunity to develop competence and therefore confidence (O’Conner, 2006). The traditional physical education curriculum is skewed towards rewarding the already athletic and capable students who “enter the class with more ability” and then “thrive at the expense of less skilled students” (O’Conner, 2006, p.192). The traditional physical education curriculum model that “emphasises effort and teamwork” results in sport teaching that is “largely uncontextual and culturally irrelevant” (Laker, 2003, p.153) to the education and future needs of many students.

The persistence of sport teaching focussing on effort, compliance and the reproduction of very specific movement patterns may be a reason physical education continued to be situated at the margins of the academic goals of schooling, a potentially precarious position that leaves physical education with a far from clear future in a present climate characterised by a political imperative for a core national curriculum (Penney, Emmel & Herrington, 2008). Demands for a ‘less cluttered’ curriculum contain the potential to position physical education as an ‘add-on’ without the same value and validity as the traditional ‘academic’ subjects (Hemphill, 2008).

As long as “sport is described as simply the demonstration of physical skill, it will remain a second rate form of knowledge …. However, if we use an alternative way to look at sport, it could stand alongside as literacy and numeracy as an equally valued way of knowing” (Hemphill, 2008, p.15). Articulating a purpose of sport teaching in physical education beyond the traditional behavioural orientation, offering a curricular knowledge base and pedagogy while also highlighting a cycle of student learning, is important for physical educations academic status (Griffin, Dodds & Rovegno, 1996). Sport Literacy is proposed as the objective of sport teaching in physical education to offer a curricular knowledge base and pedagogy consistent with a tactical orientated teaching sport for understanding approach for student learning. It articulates the knowledge valued in sport teaching and learning in a manner consistent with the way knowledge and its application are being positioned in other areas of the school curriculum. Sport literacy positions sport learning as an authentic competency (Richards, 2008). Sport literacy provides the potential to address the “educational value or significance” (Green, 1998, p.3) of sport as a physical education content by considering sport as a ‘form of knowledge’ for students and teachers.

Sport as a Literacy

Sport literacy is an example of the expansion of the literacy beyond written forms as ‘multiliteracies’. Within a multiliteracies framework literacy refers to the ability or skill of an individual to read and understand the body of knowledge associated with a field of learning (Cope & Kalantzis, 2000). Four distinct understandings of literacy are embedded within a consideration of sport literacy as a field of learning (Mandigo et al., 2007, p.5).

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- Content & comprehension of the content.
- A communicative practice.
- The use of critical and creative thinking skills and processes.
- The use of knowledge and skills to make connections within and between contexts.

The four understandings of literacy are embedded within sport literacy to position sport learning as a process of knowing, and this denotes a cognitive activity (Smith, 1999). Cognition is an important element of sport skill learning. “Knowledge-cognition” facilitates skilled motor performance (Allard, 1993, p. 31) and Skilled sporting performance relies on both motor skill execution and the application of game knowledge (Dexter, 1999 cited in Turner, Allison & Pissanos, 2001, p.39). Effective skill learning is then cognitive development and physical motor skill development. The tactically orientated ‘Game Sense’ approach (Den Duyen 1996; 1997) is an iteration of teaching games for understanding (TGfU) (Bunker & Thorpe, 1982; 1983; 1986) that reflects this proposition by suggesting that skilled performance is a measure of both tactical knowledge and motor skill performance. However, the element of sport performance that is easiest to develop and which changes most quickly during development is knowledge (Thomas & Thomas, 1994 cited in Turner, Allison & Pissanos, 2001, p.39). TGfU emphasises this proposition by positioning ‘game appreciation’ and tactical understanding before skill development in the cycle of student learning.

Cognitive learning theories emphasise learning with understanding (Bransford, Brown, & Cocking, 1999). They take the perspective that students actively process information and learning takes place through the efforts of the student as they organise, store and then find relationships between information (Charles Sturt University, n.d.). This requires “a switch from traditional didactic teaching to a more dialectic approach” (Bell, 2003, p.13) as it relies on reflective dialogue prompted by the pedagogy of guided inquiry (Mosston & Ashworth, 2002). This suggests a model of sport teaching in physical education which is a highly discursive act (Evans, Davies & Penney, 1999). As a discursive act, it represents a shift from the traditional didactic approach to sport teaching to a ‘committed grammar’ where games and sport become the catalyst for conversations “for the collective development of knowledge through verbalisation” (Light & Fawns, 2002, p.2). Teaching for understanding is a key element of a cognitive perspective on learning in physical education (Fernandez – Balboa, Barrett, Solomon & Silverman, 1996).

Physical Literacy

Sport literacy is consistent with the positioning of physical literacy as the objective of physical education. Physical literacy has been proposed as the objective of physical education (Whitehead, 2001). “A physically educated person is a person who is physically literate” (Fishburne & Hickson, 2005, p.1). It is put forward as appropriate philosophy for physical education (Maude, 2001; Whithead, 2001; Mandigo & Holt, 2004; Whitehead, 2005; Fishbourne & Hickson, 2005; Whitehead, 2006) as it has the potential to more prominently recognise important psychological and sociological dimensions of learning in physical education (Penney & Chandler, 2001). Physical literacy is thought to provide a tangible ideal for physical educators to work towards (Wright & Burrows, 2006) and to
describe ‘ability’ in physical education (Wright & Burrows, 2006). Physical literacy has been described as a transdisciplinary concept which can be applied to the physical education to foreground the educative features of the learning area (Ryan & Rossi, 2008). Physical literacy has been connected to teaching games for understanding (TGfU) (Bunker & Thorpe, 1982; 1983; 1986) as games literacy (Mandigo & Holt, 2004).

**Teaching Games for Understanding and Sport Literacy**

Teaching Games for Understanding was developed to address the perceived deficiencies in the traditional approach to physical education games and sport teaching (Bunker & Thorpe, 1982). TGfU diverges from the traditional ‘physical education method’ by placing ‘game appreciation’ and tactical understanding at the forefront of a six step cycle of learning. Game appreciation is an understanding of the rules of the game to be played. Rules are considered instrumental in the TGfU model as provide a game its shape and ‘internal logic’ (Grehaigne et al., 1999) through the placement of constraints on elements of play. The ‘internal logic’ of a sport refers to the way the representational elements become framed and make it possible for players and spectators to interpret and make sense of the play as it unfolds. In other words, the ‘internal logic’ of a sport provides the purpose to the play and comprises the common understanding of the movement relationships and movement responses of players. The ‘internal logic’ of a sport is therefore the meaning created by the interdependent nature of tactics, technique and athletic potential translated into action (Grehaigne et al., 2005). Increasingly sophisticated understanding of the ‘internal logic’ of a sport enables sport participants, as players, coach and spectators, to more effectively read, respond and react to the anatomy of a game performance (Hopper, 2003).

Teaching games for understanding emphasises the contextual learning of motor skill development and application through a game centered ‘play first’ approach. TGfU thematically links tactical game knowledge across the sport curriculum through game categories. This utility of the TGfU curriculum model is postulated as assisting teachers bridge game understanding across sport forms so that students can transfer game knowledge across the curriculum. Sports are normatively positioned as independent subject forms in physical education and game categories present a curriculum structure for deeper learning about sport by conceptually or thematically linking sport knowledge.

Teaching games for understanding as been purposefully applied to sport teaching in physical education as a ‘tactical approach’ (Griffin, Mitchell & Oslin, 1997; Mitchell, Griffin & Oslin, 2006). This iteration of TGfU emphasises sport learning as problem solving by foregrounding tactical problems in sport lesson planning and by describing a framework of tactical complexity capturing scoring, preventing scoring and restarting play components. Teaching sport for understanding is also at the core of the Sport Education model (Siedentop, 1994; Siedentop, Hastie and van der Mars, 2004), also known as ‘SEPEP’ (Alexander, Taggart & Thorpe, 1995). Sport Education foregrounds competent, literate and motivated sports participants. In the context of Sport Education, competency includes tactical knowledge and the ability to contextually apply this knowledge during play however, literacy encapsulates knowledge defined as the rules, rituals, culture and conventions of sport. Any definition of sport literacy needs to capture all of the sport knowledge which is valued and, therefore, sport literacy must be inclusive of the sport knowledge included in the TGfU and
Sport teaching in physical education: considering sports literacy

Sport Education models. Teaching sport for understanding includes then tactical, technical (sport specific motor skill) and socio cultural sport knowledge.

According to Capel (2008), how physical education is taught is as important as its content for pupils’ learning. Teaching games for understanding articulates an alternative teaching construct for sport teaching in physical education. It presents sport learning as an authentic competency where ability is both a physical and cognitive capability. Sport literacy represents this alternative analysis of sport knowledge, expanding both the range of knowledge valued in the teaching of sport in physical education and the learning outcomes achievable by students. Considered from the perspective of authentic competencies, sport participants who are ‘sport literate’ have;

A. Knowledge and understanding that enables them to tactically understand a game and strategically read a game (Hopper, 2003; Mandigo & Holt, 2004; Siedentop et al., 2004),

B. Motor techniques and tactical skills to respond in play with appropriate decision making (Mandigo & Holt, 2004; Siedentop et al., 2004) in the familiar and unfamiliar circumstances which present during play (Kirk, 1983).

C. Positive motivation (Mandigo & Holt, 2004) and enthusiasm (Siedentop et al., 2004) towards sport participation.

D. Knowledge and understanding that enables them to appreciate tactical similarities in games which are structurally similar, and the ability to transfer game knowledge between sports (Bunker & Thorpe, 1982).

E. Knowledge and understanding that enables them to value the rules, rituals, traditions and socio cultural significance of sports, and distinguish between good and bad practices (Siedentop, et al., 2004).

Sport literacy initiates a lens through which to view the differentiation between sport as a mode of learning situated within physical education and sport as formalised and institutionalised community sport (Suits, 1988). The capacity for sport concepts to be understood, applied and constructed in multiple expressions of the same articulation is a facet of the tactically orientated TGfU curriculum model (Bunker & Thorpe 1982 & 1983, Bunker, Thorpe & Almond, 1986), and subsequent iterations such as Game Sense (Den Duyen 1996, 1997), Tactical Games (Griffin, Mitchell & Oslin 1997; Mitchell, Oslin & Griffin, 2007), Play Practice (Launer, 2001), PlaySmart (Bell, 2003) and Play with Purpose (Pill, 2007b). Sport literacy is an expression of the authentic competencies espoused for the TGfU and Sport Education curriculum models. Thinking of sport in this manner contains the potential to reposition physical educators from teachers of ‘spectator knowledge’ to teachers of ‘insider knowledge’ that assists learners in their understanding of ‘what’ to do as well as ‘how’ to do it (Bunker, Thorpe & Almond, 1986). Spectator knowledge (Phillips, 2005) is used here to identify the passive role of learners in traditional physical teaching, where students are instructed through teacher centered direct instruction approaches in order to learn how to repeat pre determined movement responses in tasks largely decontextualised from the way the game is played. Insider knowledge, on the other hand, is that which allows students to understand the contextual application of movement solutions because they have been taught to ‘read’ the internal logic of the game (Howarth, 2005).
Conclusion

Physical education theorists have suggested that physical education, and therefore sport as content form for physical education, must situate itself within educational outcomes (MacDonald & Brooker 1993; Kirk 1996; Penney & Chandler 2001; Pill 2007a) and the contribution that physical activity makes to learning, rather than a narrative centred on physical activity accumulation and the activities which comprise the content of physical education (Penney & Chandler, 2001; Pill, 2007a). While immersion in advocacy of physical education for its potential to realise health outcomes for students through the accumulation of physical activity is tempting and contains some historical context, contemporary discussions of physical education are rightly positioned within a capacity to realise educational outcomes (Pill, 2007a). The need for reflection upon the beliefs and values about the appropriate outcomes from sport teaching (Pill, 2006), as well as what is taught and the way it is taught rightly includes the search for ways to make physical education teaching more meaningful and purposeful (Tinning, Kirk & Evans, 1993). This paper makes the case for the objective of sport teaching in physical education as sport literacy. Sport literacy contains the potential for a narrative of sport teaching that more purposefully communicates the academic foundations of sport teaching and learning in physical education. Sport literacy is consistent with suggestions that physical literacy is an appropriate objective for physical education. Sport literacy is proposed as the objective of sport teaching in physical education to clearly communicate the educational endeavour of sport teaching in physical education.

References


Sport teaching in physical education: considering sports literacy


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Beyond student-centered and teacher-centered in physical education

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Abstract

The division between student-centered and teacher-centered has its roots in the progressive education versus traditional education debates of last century. Dewey described the cyclical movement between the two as the swing of a pendulum between extremes. These movements continue to occur today, with teachers attempting to meet both masters, p. child and curriculum, by way of compromise, a mix of methods and focus. Moving beyond this impasse is fundamental to understanding education in a way that does not simply mix child and curriculum in some hybrid, but rather legitimates both in their inseparability. In physical education this inseparability of child and curriculum can be seen in an integrated project which brings together many of the models in games teaching. These models partially address a whole that can only be seen when child and curriculum form a unity.

Keywords: Student-centered, Philosophy of education, Project method

Introduction

Searching for unity in education amongst division and hybridization.

The intention of this paper is to background, philosophically, a way forward beyond the seeming divide between two sides of education: student-centered and teacher-centered; a division that afflicts not only physical education, but education more generally. The substance of this philosophical background is provided by Dewey, with the support of his colleague Kilpatrick. Most important for both of these philosophers of education was the quest for a unifying factor that brought together these two sides of education, a unifying factor described by their notions of occupation and project. Underpinned by occupation and project, a possible way forward in physical education is briefly described which builds on the contributions from many of the contemporary models of physical education.

Dewey portrayed this division in education as an opposition between two broadly defined educational forms. ‘The opposition, so far as practical affairs of the school are concerned, tends to take the form of contrast between traditional and progressive education’ (Dewey, 1938, p. 17). ‘The phrase “progressive education” is one, if not of protest, at least of contrast’, he (1934, p. 211) believed; ‘of contrast with an education which was predominantly static in subject-matter, authoritarian in methods, and mainly passive and receptive from the side of the young’. He (1902b, p. 8) typified traditional education by way of a ‘moral’ that implored teachers to ‘ignore and minimize the child’s individual
peculiarities, whims, and experiences. They are what we need to get away from. They are to be obscured or eliminated’. In moving away from a focus on the child, this moral urged teachers ‘to substitute for these superficial and casual affairs stable and well-ordered realities; and these are found in studies and lessons’ (p. 8). ‘Thus emphasis is put upon the logical subdivisions and consecutions of the subject-matter’ (p. 8). In contrast, progressive education emphasized the child. Here ‘the child is the starting-point, the center, and the end. His development, his growth, is the ideal. It alone furnishes the standard’ (p. 9). This sect stood in direct opposition to an isolated focus on subject matter and instead emphasized the child, or the process or method of education. ‘To the growth of the child all studies are subservient; they are instruments valued as they serve the needs of growth. Personality, character, is more than subject-matter. Not knowledge or information, but self-realization is the goal’ (p. 9).

In his historical analysis of classroom practice in the USA, an analysis that spanned a period of more than a century, Cuban recognized a broad cyclical pattern of reform that seemed to be based on such a divide in education. Educational ‘reforms do return again, again, and again. Not exactly as before or under the same conditions, but they persist’, he (1990, p. 11) observed. Underlying these cycles of reform Cuban discerned a more stable structure that he believed supported the persistence of the pattern. ‘Stability exists amid change’, he (p. 8) believed. Cuban (1993, p. 7) argued that this stability could be expressed in the form of ‘at least two traditions of how teachers should and do teach’ that ‘have fired debates and shaped practice’. Drawing ‘from a large number of varied sources in diverse settings’, he (p. 245) reasoned that ‘the data show striking convergence in broadly outlining two traditions of teaching (teacher-centered and student-centered) that have persisted for centuries’. ‘What I call teacher-centered instruction has been described as subject-centered, “tough-minded”, “hard pedagogy”, and “mimetic”’ (p. 7). In contrast, ‘what I call subject-centered instruction has been labelled at different times as child-centered or “progressive”, “tender-minded” or “soft” pedagogy, and as “transformative”’ (p. 7). By this stage, many years after Dewey, student-centered forms of progressive education were no longer considered new but were part of their own tradition, although remaining newer than teacher-centered traditional education. Both of these traditions were defined in educational discourse by their respective emphases on the relation between subject-matter and method.

Both traditions of teaching are anchored in different views of knowledge and the relationship of teacher and learner to that knowledge. In teacher-centered instruction, knowledge is often (but not always) “presented” to a learner, who – and the metaphors from different cultures vary here – is a “blank slate”, a “vessel to fill”, or a “duck to stuff”. In student-centered instruction, knowledge is often (but not always) “discovered” by the learner, who, again using different metaphors, is “rich clay in the hands of an artist”, or “a flourishing garden in need of a masterful cultivator”. (Cuban, 1990, pp. 3-4).

Cuban was aware that proponents of each of these two traditions were often engaged in public battles for supremacy. ‘Champions of each tradition believe that all students regardless of background grasp subject matter, acquire skills, cultivate attitudes, and develop behaviors best through its practise’, he (2007, p. 4) recognized. And as a result ‘fierce rhetorical struggles erupted over which ways of teaching and learning are best for all or some students’ (p. 4). These battles were waged over many different issues, right down to the
basi cs of literacy and numeracy. Cuban (p. 4) cited the ‘recent example, in, 2003’ of ‘New York City Chancellor of schools Joel Klein’ who had ‘mandated “Balanced Literacy” – a progressive whole language approach – as a preferred way of teaching children to read in nearly 750 elementary schools rather than a largely phonics-based approach’. He (p. 4) also referred to ‘the latest battle in the “math wars”’, where ‘the National Council of Teachers of Mathematics (NCTM) issued a report in, 2006 urging that math teaching in elementary and middle school concentrate on knowing multiplication tables, how to do division and manage decimals’. This was in contrast to ‘their earlier report in, 1989’ which ‘called for engaging students in learning concepts thoroughly and applying them in real world situations’ (p. 4).

However, while the two traditions could be construed as offering a choice between two clear-cut alternatives, the pedagogical response was more complex and confused because neither tradition provided an ultimate solution. ‘The accumulated evidence of actual classroom practices producing particular student outcomes to support advocates of each tradition has been mixed or unconvincing’, Cuban (2007, p. 4) discerned. As a consequence, ‘no preponderance of evidence is yet available to demonstrate the inherent superiority of either pedagogy in teaching the young’ (p. 4). This left teachers to struggle through the various claims and counter claims made in the battles between the two traditions in order to structure their practice. In addition, Cuban noticed that these reforms had less impact where it mattered most: in the classroom, especially when considered over a longer period of time. ‘Few reforms aimed at classrooms make it past the door permanently’ (Cuban, 1990, p. 11). Yet he was not insinuating that every reform had been unsuccessful. ‘Schools have changed over the decades’, he (p. 8) believed. But while change was occurring, it was not the fundamental change that enabled the reform cycle to be broken. Instead, the change was primarily a result of the compromises teachers made in order to accommodate the reform cycles. These compromises reflected what Cuban (2007, p. 5) described as ‘a blending of the two traditions’.

As teachers sought compromises between the two extremes, the specific nature of the blend employed by any particular teacher was positioned somewhere along a continuum joining the two traditions. Cuban (2007, p. 11) saw that ‘most teachers hugg ed the middle of the continuum, blending activities, grouping patterns, and furniture to create hybrids of the two traditions’. He (p. 22) labelled the most common hybrid using ‘the phrase teacher-centered progressivism’. Teacher centered progressivism pointed ‘to the hybrid classroom practices and particular student-centered features that have been incorporated into most teachers’ repertoires over the decades as they adapted their practices to regulatory policies’ (p. 22). This same process of hybridization was observed by Dewey (1935, p. 333), who accordingly described the educational system as ‘a patchwork of the old and the new; of unreconstructed survivals from the past and of things introduced because of new conditions’. Indeed, ‘the system is a system only by courtesy. In fact, it is more like a patchwork, and a patchwork whose pieces do not form a pattern’ (p. 333).

Dewey’s notion of occupation as a unifying factor in experience and education.

In order to find a way out of this patchwork of confusion, Dewey realized that a deeper ground had to be found which lay beneath the division between student-centered and teacher-centered and their hybridization. He (1938, p. 90) proclaimed ‘the fundamental issue’
to be ‘not of new versus old education nor of progressive versus traditional education but a question of what anything whatever must be to be worthy of the name education’. This problem could not be resolved while education was caught in the confusion and conflict engendered by division. An alternative theory of education had to be developed that moved beneath the dualism. Dewey (p. 5) believed that, ‘instead of taking one side or other’, it was ‘the business of an intelligent theory of education … to indicate a plan of operations proceeding from a level deeper and more inclusive than is represented by the practices and ideas of the contending parties’. In other words, ‘the philosophy of education must go beyond any idea of education that is formed by way of contrast, reaction and protest’, he (1934, p. 211) urged.

Those who are looking ahead to a new movement in education … should think in terms of Education itself rather than in terms of some -ism about education, even such an -ism as “progressivism”. For in spite of itself any movement that thinks and acts in terms of an -ism becomes so involved in reaction against other -isms that it is unwittingly controlled by them. For it then forms its principles by reaction against them instead of by a comprehensive, constructive survey of actual needs, problems, and possibilities. (Dewey, 1938, p. 6)

Dewey recognized that the functional reintegration he sought would need to move beneath both progressive and traditional education. In association with his derogation of -isms, Dewey argued that a resolution of this conflict, in a philosophical sense, required more than acceptance of some compromise which left the two sides basically intact. ‘This formulation of the business of the philosophy of education does not mean that the latter should attempt to bring about a compromise between opposed schools of thought’, he (p. 5) warned. The confusion could not be overcome by an attempt ‘to find a via media, nor yet make an eclectic combination of points picked out hither and yon from all schools’ (p. 5). Such a compromise or combination was the hybridization that Cuban had identified. On the contrary, Dewey (p. 5) believed that it necessitated ‘the introduction of a new order of conceptions leading to new modes of practice’. He recognized that such a philosophy must upset not only each side of the division, but also disrupt belief in the contest, the division itself. It would unsettle the uneasy and inconsistent status quo, and therefore face resistance.

It is for this reason that it is so difficult to develop a philosophy of education, the moment tradition and custom are departed from. It is for this reason that the conduct of schools, based upon a new order of conceptions, is so much more difficult than is the management of schools which walk in beaten paths. (Dewey, 1938, p. 5).

Dewey realized that this philosophy would reach beyond understandings of education conceived simply in terms of traditional and progressive, or teacher-centered versus student-centered, and he therefore defined education more fundamentally in terms of the underpinning notion of experience. This was reflected in Dewey’s (1916, pp. 89-90) ‘technical definition of education: It is that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience’. But such an understanding of education required what Dewey (1938, p. 30) called a ‘coherent theory of experience’. Without such a unified theory of experience, there was no basis for a way forward and out of this educational confusion.
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Having no sense of the unity of experience, and of the definitive relation of each branch of study to that unity, we have no criterion by which to judge and decide. We yield to popular pressure and clamor; first on the side of the instinct for progress, and then on the side of the habit of inertia. As a result, every movement, whether for nature study or spelling, for picture study or arithmetic, for manual training or more legible handwriting, is treated as an isolated and independent thing. It is this separation, this vital lack of unity, which leads to the confusion and contention which are so marked features of the educational situation. Lacking a philosophy of unity, we have no basis upon which to make connections, and our whole treatment becomes piecemeal, empirical and at the mercy of external circumstances. (Dewey, 1902a, p. 18)

Vocations, callings, or occupations were, for Dewey, points of continuity, of unification. Kliebard (2004, p. 60) recognized that Dewey, in his search for ‘unity in the curriculum’, had ‘found that unifying concept in what he called occupations’; and thus by extension, in callings and vocations. ‘Occupations integrate special elements into a functioning whole’, Dewey (1902b, p. 220) asserted. He (1916, p. 362) described ‘a calling’, similarly, as ‘of necessity an organizing principle for information and ideas; for knowledge and intellectual growth’; a calling ‘provides an axis which runs through an immense diversity of detail; it causes different experiences, facts, items of information to fall into order with one another’. However, in a context where vocational education was primarily associated with preparation for industry, the unity at the heart of Dewey’s use of the terms vocation, calling, and occupation, was mired in confusion. This ‘term [occupation], perhaps, was an unfortunate choice’, Kliebard (p. 60) believed, ‘because it could easily be identified with vocational education [in the form of training] or with an overriding emphasis on overt activity’. But Kliebard (p. 60) also acknowledged that ‘Dewey, at various times, took pains to explain the special meaning he attributed to that concept’. Within these explanations Dewey often drew attention to the limited interpretation given to vocation in everyday use, as well as the factors which determined his particular understanding.

We must avoid not only limitation of conception of vocation to the occupations where immediately tangible commodities are produced, but also the notion that vocations are distributed in an exclusive way, one and only one to each person. Such restricted specialism is impossible; nothing could be more absurd than to try to educate individuals with an eye to only one line of activity. In the first place, each individual has of necessity a variety of callings, in each of which he should be intelligently effective; and in the second place any one occupation loses its meaning and becomes a routine keeping busy at something in the degree in which it is isolated from other interests. (Dewey, 1916, p. 359)

These two important points were at the heart of the difference between Dewey’s conception of vocation and that employed in the everyday vernacular. The first point emphasized Dewey’s awareness that life for any individual always involved a multitude of occupations that could never be fully contained in a list of jobs or careers understood in the sense of paid employment. Dewey used the example of an artist to further clarify this point.

No one is just an artist and nothing else, and in so far as one approximates that condition, he is so much less the developed human being; he is a kind of monstrosity.
He must, at some period of his life, be a member of a family; he must have friends and companions; he must either support himself or be supported by others, and thus he has a business career. He is a member of some organized political unit, and so on. We naturally name his vocation from that one of the callings which distinguishes him, rather than from those which he has in common with all others. But we should not allow ourselves to be so subject to words as to ignore and virtually deny his other callings when it comes to a consideration of the vocational phases of education. (Dewey, 1916, p. 359)

The second point highlighted the impossibility of ever considering an individual’s occupations as completely separate from one another, as together they constituted an individual’s life. Again Dewey employed the example of an artist.

As a man’s vocation as artist is but the emphatically specialized phase of his diverse and variegated vocational activities, so his efficiency in it, in the humane sense of efficiency, is determined by its association with other callings. A person must have experience, he must live, if his artistry is to be more than a technical accomplishment. He cannot find the subject matter of his artistic activity within his art; this must be an expression of what he suffers and enjoys in other relationships – a thing which depends in turn upon the alertness and sympathy of his interests. What is true of an artist is true of any other special calling. There is doubtless – in general accord with the principal of habit – a tendency for every distinctive vocation to become too dominant, too exclusive and absorbing in its specialized aspect. This means emphasis upon skill or technical method at the expense of meaning. Hence it is not the business of education to foster this tendency, but rather to safeguard against it, so that the scientific inquirer shall not be merely the scientist, the teacher merely the pedagogue, the clergyman merely the one who wears the cloth and so on. (Dewey, 1916, p. 360)

Hence, the vocations, occupations, or callings of an individual, were integrative and unifying, as well as multitudinous and interrelated; they structured life. And Dewey believed they offered a way forward for structuring the practice of education, a possible solution to the confusion. Most important in this sense was the internal unity of an occupation, a unity Dewey (1916, p. 361) attributed to ‘an occupation’ being ‘a continuous activity having a purpose’. Consequently ‘education through occupations … combines within itself more of the factors conducive to learning than any other method’, he (p. 361) asserted. ‘It calls instincts and habits into play; it is a foe to passive receptivity. It has an end in view; results are to be accomplished’ (p. 361). An occupation thus ‘appeals to thought; it demands that an idea of an end be steadily maintained, so that activity cannot be either routine or capricious’ (p. 361). And ‘since the movement of activity must be progressive, leading from one stage to another, observation and ingenuity are required at each stage to overcome obstacles and to discover and readapt means of execution’ (p. 361). Occupations seemed to bring all of the disparate elements of education together in one.

*Kilpatrick’s understanding of project as a unifying factor in experience and education.*

This quest for unity in experience was central to the work of Kilpatrick, ‘an avowed disciple of Dewey’s’ (Kliebard, 2004, p. 137). Kilpatrick (1918a, pp. 319-320) claimed to have ‘felt increasingly the need of unifying more completely a number of important related
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aspects of the educative process’, and he ‘began to hope for some one concept which might serve this end’. Kilpatrick (p. 320) found this ‘unifying idea … in the conception of whole-hearted purposeful activity proceeding in a social environment’. Dewey’s (1916, p. 361) emphasis on occupation as a ‘continuous activity having a purpose’ was clearly implicated here. But Kilpatrick did not mention vocation, occupation or calling. Instead, he (p. 320) focused on ‘the unit element of such activity, the hearty purposeful act’. It was ‘to this purposeful act with emphasis on the word purpose’, that Kilpatrick (p. 320) applied ‘the term “project”’. He (p. 320) openly acknowledged that he ‘did not invent the term [project]’, nor ‘start it on its educational career’. But he (p. 320) did believe that he had appropriated ‘the word [project] to designate the typical unit of the worthy life’. By way of this unifying factor, he (p. 319) described this conception of education as ‘the project method’. Yet he (1921a, p. 283) maintained that ‘the particular word, project, is of small consequence; the idea or point of view back of the word is the important element’.

We understand the term project to refer to any unit of purposeful experience, any instance of purposeful activity where the dominating purpose, as an inner urge, (1) fixes the aim of the action, (2) guides its process, and (3) furnishes its drive, its inner motivation. (Kilpatrick, 1921a, p. 283)

In contrast to the ambiguity that seriously impeded Dewey’s efforts to communicate the unifying character of vocations, Kilpatrick’s (1918a) essay on the project method ‘caused such an immediate sensation that the Teachers College Bureau of Publications was obliged to distribute an astounding 60,000 reprints’ (Kliebard, 2004, p. 135). Kliebard (p. 138) believed that Kilpatrick’s project method offered educators at the time ‘a clear alternative to the reforms being promoted by the social efficiency interest group’. While education through occupations was not popularly comprehended, education through projects touched a chord with teachers. The project method seemed to provide teachers with a less confused way of comprehending a message similar to that which Dewey had tried to convey via occupations, although there were still significant misunderstandings. For one, many teachers simply interpreted projects in line with their current practice as units of varying size focused on subject-matter topics.

It may not be out of place by way of negative definition to say emphatically that a project is not a topic – large or small. What gave rise to the idea that a large topic constitutes a project is beyond my power to explain. We hold no copyright for the term; but what sense or purpose there can be in introducing this kind of confusion is more than I can see. Projects may arise in connection with topics; but most emphatically a topic as such is not a project. (Kilpatrick, 1921a, pp. 286-287)

In the other direction, towards the child, Kilpatrick (1921a, p. 286) also found himself clarifying the notion of a project, specifically in relation to ‘the origin of purpose’. ‘Our insistence upon child purposes has been taken to mean that the choice by the child himself of his activity is essential in our point of view’, he (1921b, p. 315) recognized, a position that seemed to advocate for educational control resting ultimately with the child and not the teacher. ‘Some have feared that we call upon the teacher to wait for a move from the child. This is wrong’, Kilpatrick (1921a, p. 286) claimed. And ‘perhaps the most hurtful of all the misconceptions’, he (1921b, p. 314) confessed, ‘is the idea that we propose to turn children
loose to make their own decisions, to decide their own course’. But ‘far from it’ was Kilpatrick’s (p. 314) response to such a claim. Instead, he stressed that ‘the reasons urged for desiring child-purposing … center about the conception of a mind-set-to-an-end’. This connection between mind-set and end was Kilpatrick’s rendering of Dewey’s (1916, p. 117) stipulation that an educational aim ‘falls within an activity, instead of being furnished from without’.

Based on such an understanding, education must be conducted such that the child personally engaged with the end or aim suggested within an activity, and saw the means for achieving such end or ends as making sense. But this did not mean that the child had sole responsibility for initiating the end or ends, or even the means. It was primarily the job of the teacher to pre-empt these, staying ahead of the children and guiding them through the project as it was already constructed in outline. Such project construction demanded that the teacher’s knowledge of the children and the curriculum be brought both together complementarily in the design of a project that was engaging and made sense for the child. The end was engaging, and the broad means to achieve this end made sense, also leaving space for children to make more particular decisions within the overall purposeful framework. For Kilpatrick (1921b, p. 315), such a mind-set-to-an-end connection secured ‘an inner, as opposed to an outer urge in the effort to reach the end’; it directed ‘the steps in the activity consistently toward the end’; and additionally, it brought ‘such readiness and satisfaction as utilize the laws of learning for fixing in the child the steps so organized and taken in pursuit of the end’.

None of these considerations, it will be seen, depends upon the original initiation of the purpose, but only upon its effective functioning after it has been set up. It is then purpose as mind-set, and not purpose as the act of original choosing which we have in mind in demanding purposeful activity. It is upon the deeply felt inner urge toward an end that we are basing our hopes and plans. (Kilpatrick, 1921b, p. 315)

It was clear to Dewey that important differences could exist between projects and occupations, depending on how the notion of a project was interpreted. For Kilpatrick (1918b, p. 528), the purposeful acts upon which projects were based were the ‘typical unit of life’, and projects then enabled these to become ‘the typical unit of school’, such that ‘the two’ were ‘made identical’. In subtle distinction, Dewey held occupations to provide unity, rather than being themselves units of life and education. But when considered broadly in relation to purpose, as Kilpatrick had stipulated, Dewey accepted the correspondence between projects and occupations. ‘Constructive occupations have in recent years found their way increasingly into the schoolroom. They are usually known as “projects”’, he (1933, p. 217) stated. Dewey (1928, p. 201) recognized that ‘organization of subject-matter’ was ‘reached through a serial or consecutive course of doings, held together within the unity of progressively growing occupation or project’. However, ‘in order that they [projects] be truly educative’, he (pp. 217-218) was adamant that ‘certain conditions … should be fulfilled’. Reflecting on the theory underpinning the efforts made at the University Elementary School in Chicago, he alluded to some of these conditions.

Occupations as engaged in by the pupils themselves were means of securing the transformation of crude and specific impulses into activities having a sufficiently long
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time-span as to demand foresight, planning, retrospective reviews, the need for further information and insight into principles of connection. On the moral side, this same continuity demanded patience, perseverance, and thoroughness – all the elements that make for. (Dewey, 1936, p. 474)

The conditions that Dewey described attempted to bridge the gap in scope and significance between projects and occupations. He (1931, p. 31) derided ‘many so-called projects’ as being ‘of such short-time span and … entered upon for such casual reasons, that extension of acquaintance with facts and principles is at a minimum’. Such projects were thus ‘too trivial to be educative’ (p. 31). As a consequence Dewey worked to expand the scope and significance of educational projects so that they more closely resembled occupations.

Dewey’s four conditions were analogous to Kilpatrick’s three stipulations, although Dewey pushed to broaden the scope and significance of projects to the level at which they became occupations. Dewey (1933, p. 218) required a project to involve: (1) enduring ‘interest’ from the child’s point of view; (2) intrinsic worth beyond ‘immediate pleasure’; (3) the presentation of ‘problems that awaken curiosity and create demand for information’; and (4) a ‘considerable time span for its adequate execution’. He (p. 219) immediately summed up these four points by declaring that ‘an occupation has continuity’. Here Dewey was stressing the point that, to be educative, a project could not simply comprise a small, short, insignificant act, however purposeful. In line with occupations, a project was ‘not a succession of unrelated acts’, but rather ‘a consecutively ordered activity in which one step prepares the need for the next one and that one adds to, and carries further in a cumulative way, what has already been done’ (p. 219).

The test of a good project is whether it is sufficiently full and complex to demand a variety of responses from different children and permit each to go at it and make his contribution in a way which is characteristic of himself. The further test or mark of a good activity, educationally speaking, is that it have a sufficiently long time-span so that a series of endeavors and explorations are involved in it, and included in such a way that each step opens up a new field, raises new questions, arouses a demand for further knowledge, and suggests what to do next on the basis of what has been accomplished and the knowledge thereby gained. Occupational activities which meet these two conditions will of necessity result not only in amassing known subject matter but in its organization. (Dewey, 1928, p. 202)

Dewey interpreted Kilpatrick’s project method as fulfilling this connection with occupations. ‘The project method, as developed by Dr. Kilpatrick, involves the presence of a common purpose shared by teacher and learner, which extends over a considerable period of time’, Dewey (1951, p. ix) acknowledged. Such a time-span introduced ‘the continuity of development that is a prerequisite of genuine progress’ (p. ix). Additional to this, Dewey (p. ix) highlighted a ‘second main trait of the project method’, which further identified projects with occupations. He (p. ix) considered Kilpatrick’s projects to represent, ‘in terms of the attainments and capacities of the students some typical life situation in the world outside the classroom’. For Dewey, projects that met the conditions he had set were, for all intents and purposes, occupations. They offered a way of unifying the curriculum with life, they were
organizing principles supporting the integration of subject-matter and method, the logical and the psychological.

Physical education as occupation and project.

Many contemporary forms of physical education have been claimed as student-centered. Dyson, Griffin and Hastie (2004, p. 226) referred to sport education and tactical games as ‘student-centered models’. Mercier (1993, p. 60) aligned ‘student-centered teaching strategies’ in physical education with ‘social skills instruction’. Such a focus on the social aspects of physical education was embedded in Hellison’s model of teaching for personal and social responsibility in physical education. Here Hellison (2003, p. 133) acknowledged the importance of support from ‘student-centered administrators and teachers’ in order to implement this model. These student centered models of physical education were designed to contrast with more ‘traditional physical education programs’ which ‘position the teacher as instructor and the students as recipients of content’ (Pill, 2007, p. 28). Yet, as Butler and McCahan (2005, p. 52) noted, “although many [physical education] teachers believed that learning should be ‘child-centered,’ in reality they taught using a directive approach.” The hybridization of student-centered and teacher-centered was alive and well in physical education.

Student-centered models of physical education, while offering important advances in curriculum and pedagogy when compared with traditional approaches, were not yet engaging students at a point of interest capable of encompassing the broad range present in a generic school classroom. From Dewey’s and Kilpatrick’s perspectives, such a model would need to be constructed as a longer term project aligned with a broadly framed occupation that was of immediate relevance to all of the young people in the class. While many students were interested in being game players of some kind, this occupation could very easily be set-up as exclusive, especially in relation to the selection of the game or games, and thereby alienate rather than engage.

In addition to the occupation of player, many students were very interested in the creation and ongoing development of the games themselves. The involvement of young people in play situations occurring during school recess and lunchtimes, and thereby outside direct teacher involvement, attested to this fact. In this context, the social necessity of being able to sort out disputes between individual players and between teams of players was also acute. Being a participant in such play required much more than motor skills. Based on such an alignment of physical education with the lives of students beyond the classroom, the broader occupation relevant to physical education, very difficult to label in any specific way, involved what seemed to be all of the more contemporary models of physical education.

Hellison’s (2003) teaching for personal and social responsibility made explicit the need for social skills in being able to cooperate within a milieu that involved competition, both of ideas and performances. These were also factors required for successful membership of a team. Almond’s (1983) model of games making suggested the possibility of students actually creating their own games. In doing so, young people not only gained the satisfaction and level of ownership of a game that kept them coming back for more, but their understanding of the nuances of the game, their game sense, reached far deeper. This game was then the game inserted into Siedentop’s (1994) model of sport education, which
highlighted all those structural aspects of sport that supported the playing itself and required negotiation. The tactical games model, based in the initial work of Bunker and Thorpe, suggested the importance of strategy in the game play combined with a student-centered pedagogy. And the development of motor skills, evident in models such as that of fundamental motor skills in Victoria, pointed out not only the importance of skills, but also the ways in which skills could be analysed, not by the teacher, but by the young people themselves.

These five models of physical education curriculum, when brought together in a unified way by an occupation broad enough to engage the interests of young people, and structured in a long term project designed by the teacher to bring this occupation to life, moved beneath the student-centered and teacher-centered hybridization characterizing many attempts to advance curriculum and pedagogy in physical education. An attempt to construct such a project, oriented around these five models in an occupation and project sense, has been detailed in an introductory way by Quay and Peters (2007, 2008). It is beyond the scope of this paper to revisit the suggestions made in this attempt, but it is hoped that the philosophical basis for such an attempt has been made clearer.

References


Beyond student-centered and teacher-centered in physical education


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Harmony physical education: It’s influence on primary school students’ emotional intelligence

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Abstract

The Harmony Physical Education (HPE) program is meant to increase primary school students’ emotional intelligence. The present study is based on Bandura’s (1986) social cognitive theory. HPE program is a physical education (PE) program consisting of games, sports, and massive dance. Six intact classrooms of fifth grade students come from different Public Elementary Schools were randomly assigned into control group (three classrooms) who received regular PE program, and intervention group (another three) who received HPE program. Experimental protocol extended for 12 weeks, and emotional intelligence was assessed prior to and following the intervention using Emotional Scale, that was modified from Bar-On EQ inventory. ANOVA two ways mixed design revealed that HPE program is effective in increasing primary school students’ emotional intelligence which consist of intrapersonal, interpersonal, self adjustment, stress management, and general mood aspects.

Keywords: Harmony, Physical education, Emotional intelligence

Introduction

Many attempts had been done to develop education models, but most of them were aimed to develop cognitive abilities, and lack of psychosocial aspect. So there were many negative behavior among children and adolescence (Poerwanti, 2005), for instance, narcotics, free sex, lack of social concern, pupils do not respect to their teacher (Suardiman, 1999), beating friends viciously (Kompas, 2006), and suicide (SCTV, 2006). According to Brackett et al. (2004) study, negative behavior was correlated with poor emotional intelligence. So, to minimize the occurrences of negative behavior among children and adolescence, there must be many acts to do to increase emotional intelligence since early age or elementary school, because according to Salovey and Mayer (1997) emotional intelligence can be developed or increased.

Children grow and develop through physical activity and playing. So, emotional intelligence training and developing can be provided to children through playing and physical activity or through physical education to make it more attractive and effective. However, physical education itself, as Crum (2003) suggests, is not a wonder oil, that can be simply used and then bring outcomes that educators wants to get. Belief that physical education can contribute to character building, think logically, social interaction developing, etc will be weak, and perhaps never be realized. If physical educators want to develop students’ social
interaction, logically thought ability, or other psychosocial skills, the subject matters have to be prepared carefully according to the outcomes wanted.

KTSP 2006 or Subject Unit Level Curriculum that our government made does not provide examples what kind of games or sports that can bring social and emotional outcomes. May be the intention is to bring the physical education teachers occasion to create games and sports that make the subject more attractive according to the local situations, and bring all outcomes wanted, included social and psychological aspects. But not all PE teacher can do that easily, because some of them are not come from sport teacher education school.

Harmony Physical Education Model is aimed to help Elementary School physical education teachers to prepare teaching plan including subjects that also develop psychosocial skill or emotional intelligence as well.

Harmony Physical Education was premised on principle from social cognitive approach (Bandura, 1986; Ommundsen and Bar-Eli, 1999). Social cognitive approach focused on pupils’ perception and cognitive in PE class and the situational/contextual factor influence. According to social cognitive approach PE teaching and psychological outcomes do not directly relate. PE teachers have to create some situations to influence pupils’ perception and cognition in a way that psychological outcomes can be realized. Social cognitive research on motivation and learning has shown that pupils’ cognition in turn, influenced their affection, motivational behavior, and skill mastery in PE (Lee, et al. 1992). Children’s participation in games and sports has implications for the development of peer relations and self esteem (Weiss and Duncan, 1992). Peer relation and self esteem are parts of EI or psychosocial abilities.

Another researcher has employed emotional intelligence development intervention strategy among elementary school children in physical education (Uhamisastra, 2003), but only use open sport and close sports. In the present study, Harmony Physical Education consists of games, sports, and dance.

It was hypothesized that children receiving Harmony Physical Education would score significantly higher on emotional intelligence (intrapersonal, interpersonal, self adjustment, stress management, and general mood aspect), than those receiving regular Physical Education.

Method

Participants and design

Participants of this study were 201 students, come from 6 fifth grade classrooms of 6 state elementary schools, representing 3 levels of accreditation (A, B, C). Two intact classrooms at each accreditation level were randomly assigned to experimental group and control group as shown at fig.1.
Harmony physical education: it’s influence on primary school students’ emotional intelligence

<table>
<thead>
<tr>
<th>Accred. Level</th>
<th>Experiment Group (Elementary School)</th>
<th>Control Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SDN Bendan Ngisor 01</td>
<td>SDN Pleburan 04</td>
<td>70</td>
</tr>
<tr>
<td>A</td>
<td>34 students</td>
<td>36 students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SDN Jomblang 04</td>
<td>SDN Pleburan 01</td>
<td>70</td>
</tr>
<tr>
<td>B</td>
<td>32 students</td>
<td>38 students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SDN Jomblang 08/09</td>
<td>SDN Plalangan 01</td>
<td>61</td>
</tr>
<tr>
<td>C</td>
<td>28 students</td>
<td>33 students</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>107</td>
<td>201</td>
</tr>
</tbody>
</table>

**Figure 1** The Group Assignment

The experimental protocol extended for 3 months (mid August – mid November 2007) of the academic year, and measures were administered prior to, and following the intervention phase of the study. In sum, independent variables included intervention group (HPE, and regular PE/KTSP), and accreditation level (A,B,C ). Dependent variable was emotional intelligence.

*The Harmony Physical Education Intervention*

The time allocation for PE was 90 min (either 3x30 min or 2x45 min), was done twice a week, up to 14 meetings, for all 6 classes. This intervention consist of games, play, and dance. It’s include Pantomime for emotional awareness, Chain Tag for togetherness, Shooting on The Target for self appreciation, Rowing Machine for cooperation, Capture The Flag for social responsibility, Find The Leader for flexibility, Thought Ping Pong for optimism, Hot Ball for cooperation and impulse control, Hands Ball for social responsibility, not hurting colleague, and Saman Dance, originated from Aceh, the west end Province of Indonesia, for togetherness and happiness, and several other activities.

The strategy for PE only group was regular PE (KTSP 2006) and the strategy for experimental group was Harmony Physical Education.

*Measures*

The dependent variable assessed in this study was Emotional Intelligence that consists of 5 aspects:

Intrapersonal, Interpersonal, self adjustment, stress management, general mood. The assessing instrument was Skala Perasaan, a four point Lickert-type inventory of 56 items that modified from Bar-On EQ-i for adult.
Results and Discussion

The data was analyzed by Two Ways ANOVA and showed that

1. There was a difference in EI increment between experiment group and control group (F= 331.385; p= 0.000< 0.001). The Mean of EI increment of experiment group and control group were orderly 21.90 and -1.92. So there was a significant effect of Harmony Physical Education intervention in developing EI.

2. There was no significant difference among the different accreditation level groups ( A, B, C ), (F=0.785; p=0.457 > 0.05)

3. The F score 6.953; p=0.001 < 0.01 referred an interaction between accreditation level and treatment grouping. It means that both accreditation level and kind of treatment together had influenced the development of emotional intelligence among children.

4. Even though the emotional intelligence increment was not significantly different among the accreditation level groups in the experiment group, each of them showed a different Mean. Level A accreditation group gain 25.26 score (highest score), level B group gain 21.38 (medium score), and level C group gain 18.43 (lowest score). These differences may be related to the presence of their class teachers to accompany the PE teacher or dance instructor in the intervention program. So that the difference in emotional intelligence gain was not due to the accreditation level differences, but class teachers’ participation. Correlation between teacher participation and outcomes of learning conformed to the result from Solmon and Lee’s (1997) study. Class teacher’s participation in the intervention program meetings beside the PE teacher made students more confidence when they were able to master some skill. Those enjoyment situation made student enjoy to join the intervention, said Reeve (Chen, 1996). So, the expected outcome, emotional intelligence increment as the learning goal can be reached. As Krappet et al, (Chen, 1996) proposed, those students’ enthusiastic made PE became attractive, so that the students were able to learn better. Experience within collaboration with friends, adjusting move with friends in dance, self controlling to do not to hold the monopoly of balls during hot ball games, for instance, because of being afraid of friend’s anger or teacher were social experiences. Social experiences in PE made the students interested and could learn better. It was accord to Weiss and Duncan’s (1992) and Kenyon’s (Chen, 1996) suggestion.

5. Through t-test it was found that there was no significant difference between male and female students (t=0.081> 0.05).

References


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Developing the descriptions of landmark teaching styles: A spectrum inventory

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Abstract

Mosston & Ashworth’s Spectrum of Teaching styles was first published in 1966 and is potentially the longest surviving model of teaching within the field of physical education. Its longevity and influence is surely testament to its value and influence. Many tools have also been developed through the years based on The Spectrum of Teaching Styles. In 2005 as part of a doctoral study, this tool was developed by the author, Dr. Edwards and Dr. Ashworth for researchers and teachers to identify which teaching styles were being utilised from The Spectrum when teaching physical education. It could also be utilised for self-assessment of the teaching styles and individual uses, or those who work with Physical Education Teacher Education courses. The development of this tool took approximately 4 months, numerous emails and meetings. This presentation will outline this process, along with the reasons why such a tool was developed and the differences between it and others like it.

Keywords: Spectrum inventory, Teaching styles

Introduction

Dr. Muska Mosston formulated the Spectrum of Teaching Styles and presented it to the field of physical education in his book Teaching Physical Education (1966). His basic premise was that there were a range of teaching styles from reproduction to production.

In 1969, Sara Ashworth met Muska Mosston and became involved in further developing and refining the framework which now is associated with both their names. Since its original outline there have been major changes in the Spectrum theory culminating in its most recent version outlined in Teaching Physical Education (Mosston & Ashworth, 2002, 5th edition). The Spectrum of Teaching Styles has become seen to have value and relevance to the field of physical education. The teaching styles identified are:


<table>
<thead>
<tr>
<th>Reproduction:</th>
<th>Production:</th>
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<tbody>
<tr>
<td>Style A – Command</td>
<td>Style F – Guided Discovery</td>
</tr>
<tr>
<td>Style B – Practice</td>
<td>Style G – Convergent Discovery</td>
</tr>
<tr>
<td>Style C – Reciprocal</td>
<td>Style H – Divergent Discovery</td>
</tr>
<tr>
<td>Style D – Self Check</td>
<td>Style I – Learner Designed Individual Program</td>
</tr>
<tr>
<td>Style E – Inclusion</td>
<td>Style J – Learner Initiated Program</td>
</tr>
<tr>
<td>Style K – Self Teaching</td>
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</tbody>
</table>

This article will outline the design, development and refinement of an instrument designed to identify beliefs by physical education teachers about how often they use teaching styles based on Mosston & Ashworth’s (2002) Spectrum of Teaching Styles in their teaching. In addition, an explanation will be made about the differences between the instrument developed and others serving a similar purpose.

An outline has been presented of some of the personal experiences of developing the instrument related to the Spectrum of Teaching Styles.

Developing the Spectrum Inventory

Many research instruments have been developed over the years based on the Spectrum of Teaching Styles. In 2005, as part of a doctoral study, and along with Prof. Sara Ashworth and Dr. Ken Edwards, a Spectrum Inventory instrument was developed for researchers and teachers to identify which teaching styles from the Spectrum of Teaching Styles were being utilised by selected secondary school physical education teachers.

The development of the instrument was undertaken over a period of three months and required numerous email communications and/or meetings with the co-developers. As part of a more complete appreciation of the efforts made to develop and refine a worthwhile Spectrum Inventory instrument it is helpful to outline the development process involved. The discussion will include reasons why such an instrument was necessary and present points which highlight the differences between it and other instruments serving similar purposes.

Development of the instrument

In 2004 research was conducted on a general review of literature in pedagogy, which included literature and research on Mosston & Ashworth’s Spectrum of Teaching Styles (Mosston & Ashworth, 2002, 5th edition). An important part of the review was to find instruments that may have been used to collect data on how often teachers had used certain teaching styles from the Spectrum of Teaching Styles to teach physical education. The impetus for this search for appropriate instruments was the desire of the researcher to
investigate the use of teaching styles from the Spectrum of Teaching Styles during senior physical education (years 11 and 12) classes in the State of Queensland, Australia.

The topic originally proposed for doctoral study sought to undertake a comparative study of what teaching styles were being used pre-1998 in the Senior Health and Physical Education Syllabus (BSSSS, 1986) and post-1998 in the Senior Physical Education Syllabus (QSA, 1998 and revision 2004). With the introduction of new syllabuses in 1998 health education and physical education had become separate courses of study. The Senior Physical Education Syllabus (QSA, 1998 and revision 2004) has been described as ‘innovative’ and during a review of the pilot syllabus (BSSSS, 1998) it was described as “the leading edge of curriculum development in Australia and internationally” (Reddan, 2000, p. 130). The Board of Senior Secondary School Studies (now part of the Queensland Studies Authority) suggested that “there is very little else currently under way in the English speaking world to match developments in Queensland” (BSSSS, 1998, p. 43).

One of the innovations of the new course of study was that the 1998 Senior Physical Education Syllabus (BSSSS, 1998) suggested pedagogical approaches or teaching styles that should be used such as “guided discovery, inquiry, cooperative learning, individualised instruction, and games for understanding and sport education” (QSA, 2004, p. 28). Another innovation was the integration of theoretical work (Focus Areas) and practical work (Physical Performance) – and for the work to be personalised. The Health and Physical Education Syllabus (BSSS, 1986) did not take the steps of naming specific pedagogical approaches. However, as the new syllabus explicitly named specific teaching styles, it could be predicted that a wider variety of teaching styles would be observed in post-1998 Senior Physical Education Syllabus implementation when compared to the pre-1998 Health and Physical Education Syllabus.

It had been hoped that data on Queensland senior school physical education teachers and their teaching styles had been collected (for the pre-1998 Health and Physical Education Syllabus) and all that would be required was to collect post-1998 syllabus data to complete a comparative study of the two documents. In the interests of academic integrity and validity of the proposed study it was also expected to use the same instrument in the comparison of syllabus documents. Unfortunately, for research planned (and for an understanding of physical education in Queensland), no such study of teaching styles used in the ‘older’ syllabus existed. It would have been quite interesting to know – other than through anecdotal, interview information and review panel reports – what teaching styles were used in delivering the pre-1998 Senior Health and Physical Education Syllabus (BSSSS, 1998) and then observe and assess teaching styles used in the post-1998 Senior Physical Education Syllabus (QSA, 1998 and revision 2004).

As with many doctoral studies, the originally proposed research evolved into something a little different. The revised study comprised of a teaching styles based questionnaire survey of teachers at selected schools (and from different regions of Queensland) followed by interviews with, and then observation of, a sample of respondent teachers. The selected teachers were interviewed and then videotaped teaching lessons conducted during a single unit of work during the Senior Physical course of study at their particular school. The video-recording was later coded using a research instrument which
was designed for the study along with an instrument designed by Prof. Sara Ashworth called the Identification of Classroom Teaching-learning Styles (2002).

As well as the changes to the original proposal for research there was a quest to find and/or develop a suitable instrument that could be used to observe and record teaching styles used by teachers of physical education. This instrument also had to allow teachers to recognise various teaching styles and then provide a response about those that that believed they used.

To gain any relevant insights it was decided to seek assistance from one of Australia’s most respected curriculum academics in physical education, Prof. Doune MacDonald, at the University of Queensland. She was contacted with the question, ‘Are you aware of any research ever done on what teaching styles are being used by Australian or Queensland teachers of physical education?’ To the researcher’s surprise and good fortune came the response, “The only teaching styles work in Qld that I know of I did as part of an international comparative study on teaching styles i.e.- it was a survey of Qld HPE teachers' decisions about which styles they used and why‖ (MacDonald, personal correspondence, April 2005).

Prof. MacDonald had been part of group completing a comparative study – this group included Cothran, Kulinnia, Banville, Choi, Amade-Escot, MacPhail, Richard, Sarmento and Kirk – entitled, ‘A Cross-Cultural Investigation of the Use of Teaching Styles’ (2005). The researchers used a data gathering instrument known as the Teacher’s Perceptions of Teaching Styles (2000) instrument. With this information available it seemed that this might be a very appropriate instrument to use. However, on closer inspection, it became evident that there were reasons why the Teachers’ Perceptions of Teaching Styles Instrument (2000) instrument would not be suitable. A significant reason was because the purpose of the instrument was to examine teachers’ use of and beliefs about the Spectrum of Teaching Styles (Mosston & Ashworth, 2002). In particular, the Teachers’ Perceptions of Teaching Styles Instrument had been specifically designed to measure teachers’ perceptions about fun, effectiveness and motivation. As the planned research was not attempting to measure these factors, the instrument, though a very useful resource and starting point, was not able to be utilised in its existing form.

The Teachers Perceptions of Teaching Styles Instrument (2000) included a scenario for each of the eleven teaching styles (outlined in the Spectrum of Teaching) followed by the statements: a) ‘I have used this way to teach physical education’, b) ‘I think this way of teaching would make class fun for my students’, c) ‘I think this way of teaching would help students learn skills and concepts’, and d) ‘I think this way of teaching would motivate students to learn’ (See Table 1.). The instrument used a five point Likert scale (from 1=never to 5 always).
Table 1 An example statement from the Teachers Perceptions of Teaching Styles (2000) showing the use of a Likert Scale.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have used this way to teach physical education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

After thoroughly reading the scenarios – which provided good insights and very useful information – outlined in the questionnaire for each of the teaching styles, these were compared with definitions and descriptors about the Spectrum of Teaching from Mosston & Ashworth’s Teaching Physical Education (2002). It was decided that some of the scenarios did not accurately reflect some of the teaching styles intent or behaviour. While the Teacher’s Perceptions of Teaching Styles (2000) instrument did not fit the researcher’s purpose it was the instrument reviewed that seemed to most closely reflect Spectrum of Teaching Styles definitions.

In 2005, through collaboration with Prof. Sara Ashworth and discussions with study supervisor (Dr. Ken Edwards), new scenarios were developed which it was considered would more accurately reflect each of the teaching styles. Items 2-43 (which related to the factors not relevant to teaching styles and the proposed research) from the Teacher’s Perceptions of Teaching Styles instrument were omitted. During the development process the researcher communicated with Prof. Sara Ashworth numerous times. The following include examples of questions that were posed:

I was wondering what you think of the definitions of Style B, Style C and style D? I find the use of the word "might" in styles C & D somewhat confusing. I always feel stupid quoting your own book to you, but p. 119 and p. 150 (Mosston & Ashworth 2002) seem to indicate that these definitions are missing a critical part of these styles.

Style B definition does not seem as confusing, but there is no explanation of "The teacher continues with the subject matter explanation/demonstration and the logical expectations" (Mosston & Ashworth, 2002, p. 97). The definition seems to indicate that the teacher is not presenting the task/subject matter, rather they have just set up stations and said "Go for it!" (Ashworth, email correspondence, May 2005).

Queries such as the ones outlined were courteously and meticulously answered. The feedback was applied and a revised questionnaire and draft version of the instrument was sent back to Prof. Sara Ashworth for more ‘fine-tuning.’ During the development process Prof. Sara Ashworth not only provided invaluable feedback but also much appreciated encouragement and motivation. The development process demonstrated how – based on quality feedback and the goodwill of Prof. Sara Ashworth – the ‘power’ of the internet was instrumental in allowing for efficient collaboration in finalising the instrument that was to be used in the study. The researcher and Prof. Sara Ashworth, along with input by Dr. Ken
Edwards, had developed an instrument which they all believed ‘best’ described the intent of the Spectrum of Teaching Styles.

The resulting Ashworth, SueSee & Edwards (2005) Spectrum Inventory instrument was used as part of the field research. Since its original development and use in the doctoral research the instrument has been further refined and developed. The revised version has been released on the Spectrum of Teaching Styles website at http://www.spectrumofteachingstyles.org/ and is now identified as the Description of Landmark Teaching Styles: A Spectrum Inventory (2007). Even though each style descriptor is an abbreviated form of itself, “the descriptions do provide a mutually exclusive image with the essential factors of the different teaching styles” (Ashworth, 2007, p. 2).

The latest version of the Spectrum Inventory instrument is considered to be particularly useful in the self-assessment or reflection by teachers of their teaching styles; for researchers seeking a more effective understanding and application of the Spectrum of Teaching Styles; and, as an instructional and feedback instrument for those who work in Physical Education Teacher Education (PETE) courses. In support of an understanding of the Spectrum of Teaching Styles and as a training instrument for the use of the Spectrum Inventory it may be useful to complete a video resource on the teaching styles and how to use the inventory to observe and record these.

The differences in the instrument reviewed and the instrument designed

This paper has referred to two instruments – one that was developed as part of doctoral studies – through the process outlined – and an instrument that had been used in other studies. The Spectrum Inventory (2005) instrument designed is somewhat different to the one used by Cothran et al. (2005) and in the Kulinna, Cothran & Regualos (2003) study entitled, Teachers Perception of Teaching Styles. The primary difference between the instrument developed and the one used in the studies mentioned relates to the definitions used. Every scenario descriptor or description of each teaching style (outlined in the instrument used in the other studies) was reviewed and re-written for use in the original Ashworth, SueSee & Edwards (2005), Spectrum Inventory instrument. The development process had involved reviewing the Cothran et al. (2005) instrument definitions or scenario descriptors and then comparing the scenario descriptors with the textbook descriptions of teaching styles from Teaching Physical Education (Mosston & Ashworth, 2002, 5th edition).

It is believed that the definitions that were developed – and as mentioned previously – for the Spectrum Inventory (2005) instrument more closely reflect the teaching styles and are less ambiguous than those outlined in the other instrument examined. This claim is supported by Prof. Sara Ashworth who suggests that the purpose of the Spectrum Inventory designed has been, “to provide unambiguous teaching descriptions that most closely capture the individual image of each landmark teaching style along the Spectrum” (2007, p. 1).

Another key difference between the Teachers Perception of Teaching Styles instrument and the Ashworth, SueSee & Edwards (2005) instrument is the descriptors used for the Likert scale. The descriptors for the Teachers Perception of Teaching Styles instrument used the terms ‘Never’, ‘Sometimes’ and ‘Always’. Each of these words represented the numbers 1, 3 and 5 respectively. There was no word descriptor assigned to
the numbers 2 and 4. Prof. Sara Ashworth suggested that these terms be changed and also words assigned/associated with each of the numbers. The words on the Likert scale became, ‘Not at all’ (1), ‘Minimally’ (2), ‘Here & there’ (3), ‘Often’ (4) and ‘Most of the time’ (5).

Yet another difference between the Spectrum Inventory (2005) and the Teachers Perception of Teaching Styles instrument was in their purpose. The Teachers Perception of Teaching Styles instrument was designed to “examine teachers’ experience with, and perceptions (i.e., fun, effectiveness, motivation) of, the eleven teaching styles” (Cothran et al., 2005). On the other hand the Spectrum Inventory (2005) instrument was designed to measure how often teachers believe they use certain teaching styles from the Spectrum of Teaching Styles to teach the current Senior Physical Education Syllabus (2004) in Queensland. The Spectrum Inventory could easily have scaling methods applied to record how often physical education (or for that matter any subject area) teachers believe they teach the various teaching styles – but it does not seek to measure fun, effectiveness or motivation.

Table 2  An example of one scenario from the Spectrum Inventory (2005) showing different Likert Scale Descriptors and focusing on measuring how often a teaching style was used.

<table>
<thead>
<tr>
<th>Scenario Style</th>
<th>Scenario Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>The students perform the task, selected by the teacher, in a unison, choreographed, or precision performance image following the exact pacing (cues) set by the teacher.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How frequently do I use this description to teach my senior physical education lessons throughout the year?</th>
<th>Not at all</th>
<th>Minimally</th>
<th>Here &amp; there</th>
<th>Often</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Validation of the Spectrum Inventory

While the Teachers Perception of Teaching Styles instrument has been validated and the teaching scenarios that represent the eleven teaching styles was validated in an earlier study (Cothran, Kuljina & Ward, 2000), a phenomenon occurred which, at first glance, seems contradictory for a data gathering instrument. Mosston and Ashworth quite clearly state that the Self Teaching Style-K “does not exist in the classroom” (2002, p. 290). Mosston and Ashworth go on further to state that, “this behaviour cannot be initiated or assigned by a teacher in the classroom, it does not exist in the classroom” (Mosston & Ashworth, 2002, p. 290). Despite this information the Kuljina, Cothran and Zhu (2000) study found that when using the Teachers Perception of Teaching Styles instrument there were teachers who reported using this style – and they were not alone. As previously
mentioned, Cothran et al. (2005), found teachers also reported using this style (see **Table 3**). This occurrence is reported in other research where commonly – either through misunderstanding of terms, unfamiliarity with the teaching styles, or, in a misinterpretation of their own teaching – teachers claim to use teaching styles that they actually do not or cannot use. These comments have support in reviewing work conducted by Curtner-Smith et al. (2001), Sicilia & Delgado (2002) and Sicilia-Comacho & Brown (2008).

**Table 3** A comparison of Cothran et al. (2005) and the percentage of teachers who reported using the eleven teaching styles ‘Here & There to Most of the Time’ from this research.

<table>
<thead>
<tr>
<th>Teaching Styles</th>
<th>SueSee 2005 Percentage of Teachers Reported Using This Style ‘Here &amp; There to Most of the Time’</th>
<th>Cothran et al. 2005 Percent of Teachers Indicating Use of ‘Sometimes to Always’ for Each Style Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command - Style A</td>
<td>77%</td>
<td>93.1%</td>
</tr>
<tr>
<td>Practice - Style B</td>
<td>94.5%</td>
<td>92.1%</td>
</tr>
<tr>
<td>Reciprocal - Style C</td>
<td>66.3%</td>
<td>85%</td>
</tr>
<tr>
<td>Self Check - Style D</td>
<td>52.7%</td>
<td>46.9%</td>
</tr>
<tr>
<td>Inclusion - Style E</td>
<td>47.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td>Guided Discovery - Style F</td>
<td>57.2%</td>
<td>70.6%</td>
</tr>
<tr>
<td>Convergent Discovery - Style G</td>
<td>70%</td>
<td>73.6%</td>
</tr>
<tr>
<td>Divergent Discovery - Style H</td>
<td>73.6%</td>
<td>73.7%</td>
</tr>
<tr>
<td>Learner Designed Individual Program - Style I</td>
<td>56.3%</td>
<td>40.4%</td>
</tr>
<tr>
<td>Learner Initiated Program - Style J</td>
<td>21.8%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Self Teaching - Style K</td>
<td>13.6%</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

While the final instrument, the Spectrum Inventory (2007 version), has not been validated, its credibility lies most particularly in the contribution and oversight of Prof. Sara Ashworth. If Prof. Sara Ashworth does not know her own Spectrum theory, and how to best
describe the landmark teaching styles of the Spectrum of Teaching Styles, then the question must be asked, “Who does?”

**Conclusion**

While some instruments based on the Spectrum of Teaching Styles were identified and examined none were designed to collect the research data specifically required. As part of doctoral studies a research instrument was developed which would measure the self-reported (and later observed) use of teaching styles based on Mosston & Ashworth’s (2002) Spectrum of Teaching. The instrument developed was called The Spectrum Inventory. It was successfully used to collect data about the use of teaching styles from teachers of senior physical education in the state of Queensland, Australia during 2005.

Since this initial instrument was used during data gathering for a doctoral study some modifications have been made. The final instrument – Developing the Descriptions of Landmark Teaching Styles: A Spectrum Inventory (2007) has been made available on the Spectrum of Teaching Styles website. Despite the minor changes made the purpose of the instrument still remains the same as the instrument used as part of the doctoral research.

It is anticipated that university academics, researchers, teachers and students will be able to readily use the Spectrum Inventory instrument and perhaps help to refine it further. In using the instrument it is expected that its users will have a much clearer understanding and focus with regards to both understanding and observing teaching styles identified by the very useful Spectrum of Teaching (Mosston & Ashworth, 2002).

The outline of the design, development and refinement of the Spectrum Instrument presented will hopefully add to a much greater appreciation and application of the teaching styles work as presented by Mosston & Ashworth (2002).

**Notes:**


2. The Senior PE syllabus document is now being rewritten as part of a review process of all syllabus documents in Queensland.

3. These items referred to fun, effectiveness and motivation. For example:

   - *I think this way of teaching would make class fun for my students.*

   - *I think this way of teaching would help students learn skills and concepts.*

   - *I think this way of teaching would motivate students to learn.*

   These specific statements are from the Kulinna et al. (2000) study.
4. This comment has been taken from the latest refinement of the Spectrum Inventory instrument.

5. It is considered that the work of Mosston and Ashworth has applicability across all subject areas and the instrument developed could be seen to have a much wider role in educational research.

References


Developing the descriptions of landmark teaching styles: a spectrum inventory


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Social and emotional health programs: Do they work?

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Abstract
This presentation is an amalgam of five Honours projects over the last two years. The central issue is the evaluation of a number of social and emotional health programs in primary schools. This issue arose amidst concern that although, in Tasmania, schools are implementing mental health programs in the primary school years there is little assessment of the success of such programs. This is an extremely important area as there is an abundance of research that expresses the importance of schools supporting the mental health of their students (Hunter Institute of Mental Health, 2000). This presentation assesses the use of three programs in use in two primary schools in Tasmania: Program Achieve; the BOUNCE BACK! Resilience Program; and the Emotional Literacy: Assessment and Intervention- Ages 7 to 11 program.

Keywords: Social and emotional wellbeing, Health education, Primary school

Introduction
An investigation in 2007 that examined the health of young Australians reported mental health as a significant area of concern for young people, finding that in 2003 mental health problems accounted for 50% of disease in young people aged between 12 to 24 years (Australian Institute of Health and Welfare, 2007). Current trends indicate a steady increase in social and emotional problems with over 10% of the world’s adult population suffering from a social and emotional illness (Parham, 2005). Internationally, up to 14% of 4 to 16 year olds have a social and emotional health problem (Sawyer et al., 2000) and in Australia 5-14% of the youth are suffering from depression or anxiety (Neil & Christensen, 2007). The World Health Organisation (2001) has recognised that if this trend continues, by the year 2020 social and emotional health problems, such as depression, will be the highest cause of disability and illness worldwide.

Mental health is explained as the capacity to show feelings, thoughts, behaviours and emotions in a positive way. Commonly, mental health is referred to and often used interchangeably as social and emotional wellbeing (Hunter Institute for Mental Health, 2007).

In support of this, the Australian Bureau of Statistics (2007) stated that there are emerging concerns related to rapid social change and the associated new morbidities such as increasing levels of behavioural, developmental, mental health and social problems. They detail that childhood in particular has become a key priority for Australian government and
non-government organisations. The Hunter Institute for Mental Health (2006) contend that childhood is the time to target mental health and social factors as well as promote the positive mental health and wellbeing of children as their physical, emotional, social and mental development is most malleable at this time. They further highlight that educators are in a key position to facilitate this development.

The increase of social and emotional problems has been linked to the many risk factors evident in today’s society. Risk factors include both external factors, such as family breakdown, poverty, low income and low socio economic status and internal factors, such as low self-esteem, abuse, parental neglect (Garmezy & Rutter, 1983, as cited in McGrath & Noble, 2003; Hunter Institute of Mental Health, 2006). Changes to society over the last century have led to many children living in unsupported environments; this is a key aspect in the development of social and emotional health problems (Greenberg et al., 2003). Linked to this, Bernard (2006) recognises that risk factors such as low socio-economic status will also affect the social and emotional wellbeing of children, due to them not having protective environments. Without increasing young peoples protective factors, which include many life skills taught through social and emotional learning programs in schools, today’s young people appear to be at a greater risk of developing social and emotional problems throughout their life (Bernard, 2006). As students are remaining in school settings for longer periods of time, the school environment has been identified as an agent of developmental change (Lynch et al., 2004). Schools also have the ability to reach not only the students but also their parents and the wider community who will benefit (Commonwealth of Australia, 2000).

According to Lynch, Geller and Schmidt (2004) early prevention and intervention measures are vital to increase the level of social and emotional wellbeing in the youth of Australia. In today’s society developing students social and emotional wellbeing while they are in the key developmental years is imperative as young people are faced with increasingly difficult situations in their everyday life (Lynch et al., 2004). Schools, teachers and parents have been identified as a fundamental tool in developing young peoples’ social and emotional wellbeing (Commonwealth of Australia, 2000).

Students’ mental health is important to schools and teachers as mental health problems adversely affect behaviour, academic performance and social functioning (Hunter Institute of Mental Health, 2000). The newly developed Tasmanian Curriculum for health and wellbeing highlights within the dimensions of social, emotional and mental health, some important factors that need to be developed within young people to contribute to their overall social and emotional wellbeing. These factors include, learning to manage emotions, developing positive relationships with others and the community, learning empathy and developing resilience. To help address these key issues there is a need for increased knowledge, particularly of programs that help to support and develop students’ social and emotional wellbeing.

Social and emotional learning is fast becoming a requirement that should be provided to students during their schooling. It has been argued that this recent trend in education, providing for social and emotional learning, should incorporate the concept of emotional literacy (Faupel, 2003). Emotional literacy is the ability of people to recognise, understand, handle and appropriately express their own emotions and to recognise, understand and
respond appropriately to the expressed emotions of others (Faupel, 2003). It has been contended that a person’s emotional literacy skills have an influence on their social and emotional wellbeing and if people can improve these skills, then their social and emotional wellbeing should improve.

Education reform internationally and in Australia is recognising the need for prevention and promotion of social and emotional wellbeing within schools (Commonwealth of Australia, 2000). The new Australian educational agenda includes MindMatters and KidsMatter and involves enhancing students’ life skills such as social-emotional wellbeing, character, health and civil engagement (Greenburg et al., 2003).

The KidsMatter initiative, created from the MindMatters framework which addresses social and emotional wellbeing in high schools, was developed by the Australian Government, Beyond Blue, the Australian Psychological Association, Australian Rotary Health Research Fund and APAPDC, addresses the growing social and emotional health problems in primary aged children (APAPDC, 2006; Commonwealth of Australia, 2000). The Australian initiative began in 2006 and aims to improve the social and emotional health of individuals and communities through school based programs. The KidsMatter initiative recognises several resources for social and emotional learning. This project was designed to investigate three of these initiatives: Program Achieve, Bounce Back, and Emotional Literacy; and their effects on enhancing students’ social and emotional health and reducing the chances of social and emotional health problems. Each of these programs will be discussed in detail during my presentation.

**Methodology**

Three projects were undertaken to examine the three programs.

**Program Achieve (Bernard, 2006)**

The method used for this component of the study was an interpretive quantitative approach. Small scale survey design, focused on one Tasmanian primary school located in a low socioeconomic area, was selected for this study. The school had selected Program Achieve to be implemented as part of their curriculum in the 2008 school year due to the growing concern for their students’ wellbeing.

The Australian Council for Educational Research (ACER) Social and Emotional Wellbeing questionnaire was selected and administered to both students and their teachers prior to, and after the implementation of Program Achieve. The students’ social and emotional wellbeing was assessed as a whole group and also between the different grades to determine which age group benefited most from the implementation of the social and emotional learning program. Descriptive statistics along with analysis of variance (ANOVA) tests were used to gain an insight into the difference between the pre-and post-intervention data.

**Bounce Back (McGrath & Noble, 2003)**
This component of the study used a mixed method approach. The quantitative data was also generated from the Australian Council for Educational Research (ACER) Social and Emotional Wellbeing Survey. The aim of this survey was to provide information regarding the social and emotional wellbeing of grade 5/6 students attending one Tasmanian primary school located in a low socioeconomic area. A comparison of pre- and post-tests was used to determine any effect that the program may have had. The BOUNCE BACK program was implemented in one of the grade 5/6 classes over a 10 week period (one 1 hour lesson per week). The qualitative data was collected from a semi-structured class teacher interview. For this study, this methodology allowed the class teacher’s experiences and understanding of the effects of the BOUNCE BACK! Resilience Program to be gained (Ruane, 2005).

Descriptive statistics were used to analyse the data specifically, mean, frequencies and standard deviation were calculated and reported. The social and emotional wellbeing was determined using the following formula:

\[ \text{Overall score (the greater the mean score the more positive the social and emotional wellbeing)} = \text{Presence of positive statements} + \text{Absence of negative statements}. \]

An Analysis of Covariance (ANCOVA) was conducted to determine if there was any statistical significance of the overall social and emotional wellbeing of the post scores of the two grade 5/6 classes. The typed teacher interview was reduced and organised through the use of coding. Coding categories included social and emotional wellbeing, resilience, student behaviour, getting along and student attitude specific data.

**Emotional Literacy (Faupel, 2003)**

This program was used as an intervention to assess its influence on the social and emotional wellbeing of grade 3 and 4 students attending one Tasmanian primary school located in a low socioeconomic area. An experimental research design utilising mixed methods was adopted for this study. All grade 3 and 4 students from this school were selected as participants for this study. As for the previous component, a comparison of pre- and post-tests was used to determine any effect that the program may have had. The emotional literacy program was implemented in one of the three combined grade 3/4 classes over a 10 week period (one 1 hour lesson per week). An interview was conducted with the teacher whose class participated in the emotional literacy program.

Interview data was also collected to provide a fuller understanding why an influence, if any, occurred and addressed the behavioural impact of the program. Thus, a richer answer to the research questions was provided.

**Results**

**Program Achieve**

It was found that, overall students had high levels (60% - 84%) of social and emotional wellbeing prior to the implementation of the program. However, when compared
to previous research, the number of students with low social and emotional wellbeing was still considered high (14%-40%).

When comparing pre- and post-testing results a small increase was noted in the students’ overall level of social and emotional wellbeing. However, statistically this was not considered to be significant when using an ANOVA test. Pre- and post-testing results also found that no particular grade showed statistically significantly more improvement. However, both Prep (8.1%) and Grade 5/6 (7.1%) students showed the most improvement.

**Bounce Back**

It was found that there was no significant difference when comparing the pre- and post-test survey results in the social and emotional wellbeing of the grade 5/6 class that experienced the BOUNCE BACK! Resilience Program. The results did, however, show slight positive changes in most areas of social and emotional wellbeing; these findings were supported by the results from the semi-structured teacher interview as noticeable difference in social and emotional wellbeing competencies was reported. The results showed that there was no significant difference between the pre- and post- social and emotional wellbeing of the two grade 5/6 classes.

**Emotional Resilience**

It was found that the minimum score recorded by the intervention group increased from 25 in the pre-test to 29 in the post-test and the maximum score increased from 48 to 49 (the highest achievable score being 53). Whilst this change in minimum and maximum scores occurred, the mean score recorded by the intervention group remained unchanged between the pre- and post-test (M= 39.52). There was a positive difference in the behavioural factor of social and emotional wellbeing but it was not statistically significant, however, the qualitative data also indicated a positive change in students’ behaviour from the pre to post test.

It was also found that the students who did NOT participate in the program recorded a higher level of social and emotional wellbeing in comparison to those that did receive the intervention. The mean score of the intervention group remained unchanged from the pre to post test whilst the mean score of the control group increased from 41 to 42.

**Discussion**

**Program Achieve**

The findings from this component of the study showed that a higher percentage of children had low social and emotional wellbeing than previous studies. As social and emotional problems are thought to be on the rise, this supported previous research which had indicated that between 11-15% of 4 to 16 year olds are suffering from a social and emotional problem (Parham, 2005; Sawyer et al., 2000). Other areas noted were the influence of the schools location in a low socio-economic area which has been seen to increase the chances of a child suffering from low social and emotional wellbeing (McGrath & Noble, 2003).
Additional findings showed either a very small or no change were reported when a short period of time was involved with the implementation of a social and emotional learning intervention. Past research on social and emotional wellbeing has concluded that a slight increase in any one area from social and emotional learning is enough evidence for the continued implementation of social and emotional learning programs in schools (Greenburg et al., 2003). The slight increase noted from this research, indicates that this social and emotional wellbeing program, Program Achieve, may have the ability to increase social and emotional wellbeing.

On the basis of this study alone it is difficult to be certain about which age group gained more from the social and emotional learning program. Yet there are similarities between the results from this study and previous research. Previous research indicated the need for social and emotional learning programs to be implemented as early as possible in preschool and childcare centres to ensure a healthy start (Hunter Institute of Mental Health, 2006). The social and emotional wellbeing of the Prep students from this study showed the greatest improvement.

**Bounce Back**

The results of this second component of the study, obtained through the ACER Social and Emotional Wellbeing Survey and from the semi-structured teacher interview, concluded that the BOUNCE BACK! Resilience Program may have had a positive affect on the social and emotional wellbeing of a class of grade 5/6 students. The semi-structured teacher interview data reported that in some specific areas that affect social and emotional wellbeing there was a noticeable difference, for example, students displayed more positive behaviours, they were getting along with other students better and they were showing an understanding and demonstrating what it means to be a resilient individual. The results from the survey supported these findings, however, these results were not statistically significant. It cannot, however, be concluded that the BOUNCE BACK! Resilience Program was the direct cause of any of these reported changes. There are many factors including, abuse, lack of warmth and affection, negative relationships, bullying, social exclusion socio-economic disadvantage and poverty that can influence social and emotional wellbeing that were not controllable within the classroom environment and it is possible that any one of these may have influenced any changes that were seen (Bernard, 2006).

**Emotional Literacy**

In the final component, it was concluded from the results that the intervention, the emotional literacy program, had no significant influence on the social and emotional wellbeing of grade 3 and 4 students. It was deduced that the most significant contributing factors to the results was that the school setting provides a very difficult environment in which to conduct controlled studies, as well as the possibility that the choice of outcome measure (the ACER survey) was not specific enough to detect changes in the different components of social and emotional wellbeing. Other factors which may have contributed include: the small sample size; the duration of the study (research suggests that studies should be conducted for a period of no less than one year); the number of variables that were unable to be controlled, such as the content taught by the class teachers over the 10 week intervention period, students’ home-life and student absences.
Conclusions

Overall, it can be concluded that, even from small scale research, increases in the students’ overall social and emotional wellbeing can be noticed through use of some social and emotional learning programs: Program Achieve; and BOUNCE BACK. In corroboration with previous findings, the increase in students’ overall social and emotional wellbeing is regarded as enough evidence to continue with the program in the participating school. The even consistency of results for each grade, which used Program Achieve, also justifies the continued implementation of the social and emotional learning program throughout the entire school.

The third component of this study, Faupel’s (2003) Emotional Literacy program, found the intervention had no significant influence. However, there was quantitative and qualitative evidence of improved student behaviour after participating in the emotional literacy program. This finding has positive implications for improving problem behaviours of students and suggests that emotional illiteracy can give rise to increased problem behaviours amongst youth.

This study provided an insight into the importance of educators understanding social and emotional wellbeing and social and emotional learning. Every teacher has the responsibility to maintain a safe protective learning environment for their students as well as engaging and providing students with a curriculum that develops life skills for their social and emotional wellbeing.

References


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The training and qualification needs of teachers leading education outside the classroom activities

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Abstract

In 2007 the New Zealand Ministry of Education, in association with Victoria University of Wellington, completed a research project on the training and qualification needs of teachers leading Education Outside the Classroom (EOTC) activities in New Zealand schools. The research involved a survey completed by 164 schools from throughout New Zealand supported by five focus groups of teachers drawn from primary, secondary and composite schools. This article reports on teacher’s beliefs about training and qualification needs in EOTC, their perceptions of the value and benefits of training and qualifications, relevant training and qualifications for EOTC and the support needed for teachers to access appropriate training and qualification.

Keywords: Training and qualification for education outside the classroom, Teachers

Introduction

The Ministry of Education in conjunction with Victoria University of Wellington, College of Education conducted research into the training and qualification needs of EOTC leaders in schools in November and December 2007. This research was supported by the Classroom (EOTC) sector reference group and Education Outdoors New Zealand (EONZ).

The research sought to identify the:

- training and qualification needs of teachers for the EOTC activities they currently lead or would like to lead,
- training pathways, including qualifications, which are relevant for teachers who lead EOTC activities, and
- support that needs to be in place to ensure EOTC leaders’ training and qualifications meet current, accepted practice standards.

Literature Review

In the Ministry of Education’s Safety and EOTC (2002), the diversity of EOTC experiences in schools is highlighted in the EOTC definition: “This [EOTC] ranges from a museum or marae visit to a sports trip, outdoor education camp or a rocky shore field trip”
The diversity of contexts and venues used for EOTC experiences in secondary and primary schools raises challenges for the design and development of appropriate training and qualification pathways. Haddock (2007a and 2007b) highlighted the need to “Identify clear pathways for teachers to gain experience, training and qualifications relevant to the EOTC activities they [teachers] lead in their schools” (p.9). The literature review also showed that Education Outside the Classroom was a key part of our identity as New Zealanders and was a valuable component of our education system. (Abbott 1990, Hattie et al 1997, Haddock & Sword 2004, Zinc & Boyes 2005-6, Zinc & Boyes (2007) Haddock 2007a, 2007b) The recently released national curricula which include the New Zealand Curriculum and Te Marautanga o Aotearoa supports learning in real contexts and wants our young people to be confident, connected, actively involved and lifelong learners. (Ministry of Education, 2007b, Ministry of Education, 2008b).

Research reinforced the need for teachers to be thoroughly trained and qualified through well-structured, clear and appropriate training pathways in order to deliver quality educational outcomes. The concept of accepted best practice was highlighted and teachers leading EOTC activities that support teaching and learning of the curriculum must be competent and confident in safe and sound practices based on accepted best practice. (Outdoors New Zealand 2007, Haddock 2007a and 2007b and Zink & Boyes 2007) Documents including legal requirements, ethical responsibilities and the graduating teacher standards all reinforce the need for teachers to be well trained and where appropriate, qualified, to develop the most effective learning for students. (Health and Safety in Employment Act 1992, the Education Act (1989) and the Graduating Teacher Standards 2007).

Methodology

The research used a concurrent triangulation mixed method design (Tashakkori & Teddlie, 2003, pp. 226-229), involving an email survey and five focus groups.

The Survey:

The survey was initially piloted with ten schools. The feedback received from this pilot was used to refine the survey in a number of ways. A representative stratified sampling method, (Footnote) was used to identify four hundred schools that reflected the national profile of New Zealand schools regarding school type, decile, location, region and roll size. One hundred and sixty-four schools (41%) of the total sample responded. The responding schools included 127 primary schools (40%), 17 secondary schools (33%), and 16 composite and special schools (57%). It was established that the profile of the schools that had responded closely matched the national profile of New Zealand schools. This would support the belief that the survey results are likely to be representative of most New Zealand schools.

A representative stratified sampling method

This sampling method is used when the population being examined has a number of distinct categories (strata) which differ significantly in their makeup. A random sample, proportional to the size of each stratum, is selected from within each stratum. This allows
greater control over the makeup of the sample ensuring that the sample more accurately reflects the composition of the population and reduces any sampling error and bias.

*The Focus Group*

Purposive sampling (National Statistics United Kingdom, 2005) was used to identify seventy five schools that were approached to participate in focus group interviews. The schools were selected because it was believed that they had a particular involvement in EOTC that enabled detailed exploration of the research objectives. The schools included, primary, secondary, and composite schools and offered a spread of school types, deciles, locations, regions and roll sizes. Of the 75 schools, 23 (31%) participated in focus group meetings held in five centres, Hamilton, Tauranga, Kapiti Coast, Christchurch, and Dunedin. Prior to the first focus group the questions were piloted with a group of 12 teachers and EOTC co-ordinators from secondary and primary schools. The participants’ responses were used to refine and improve the final focus group questions and the recording techniques.

Each focus group was facilitated by two EOTC experts who had received training by the research team prior to the commencement of the research. The responses of the participants were recorded on flip charts and by an audio recorder. At the completion of the interview the flip chart information was checked for accuracy using the audio recording.

When compared to the national profile, the focus group sample had a lower proportion of primary and a higher proportion of secondary schools; fewer low decile (1-4) schools but more middle to high decile (5-10) schools; 22 of the 23 focus group schools were located in the main urban areas There was no representation from the northern region and over 50% of the focus group schools had between 301-675 students compared to the national profile of 26%. It is important to note that it is not possible to draw statistical inferences from a purposive non-random sample as the spread of people involved was less important than the criteria used to select them. It should also be noted that this purposive selection may have meant the sample was rather more favourably disposed towards EOTC than a random sample would have been.

*Results*

These findings will report on the questions posed in the introduction.

A notable feature of the findings was the consistency of the responses between the survey and focus groups.

1. Training and qualification needs of teachers for the EOTC activities they currently lead or would like to lead.

The respondents believed that EOTC encompasses a wide range of activities and is an integral part of the effective delivery of the curriculum in most New Zealand schools. This was highlighted in comments related to pre-service education where respondents indicated that it was essential that an introduction to the values, benefits and opportunities of EOTC activities to support curriculum and cross-curriculum teaching and learning be included. The
findings also indicated that pre-service student teachers should have the opportunities to apply the theory to practice through practical experiences.

It was considered beneficial for students, staff and parents when teachers leading EOTC activities were well trained and qualified as this enabled teachers to be more confident and competent when taking students outside to learn.

The following was typical of the responses. All the focus groups reported that EOTC training and qualifications were very important for teachers. Groups thought EOTC training and qualifications improved the school’s ability to:

- implement current best practices;
- manage risk effectively;
- manage incidents and emergencies;
- maintain currency, keep up-to-date with evolving standards; and ensure that appropriate training and qualifications covered the range of activities the schools provide.

There was general agreement that teachers leading EOTC activities needed to have opportunities to gain relevant experience, training qualifications at foundation level, particularly a first aid qualification and risk management training and, where appropriate, experience, training and qualifications that are activity-specific at the leader, instructor and trainer/assessor levels.

The focus groups acknowledged that schools often contracted outside providers to lead higher risk activities or where higher technical skills were required. They commented that there appeared to be an assumption that outside providers were suitably trained and qualified for the job which may or may not be the case. In employing an outside provider they felt that it was essential that schools follow the guideline in Safety and EOTC, “Contracting Checklist” (p.75) as schools have a responsibility to take all reasonable practicable steps to ensure the safety of employees and other people (for example, students).

It was seen as important that teachers implemented accepted best practice when leading EOTC activities and that EOTC training and qualifications improved the school’s ability to ensure this happened.

Experience was identified as a crucial factor in effective leadership of EOTC activities.

Respondents consistently identified first aid as an essential qualification. Training in water safety, swim teaching and life saving were also seen as important by the focus groups and swim teaching was identified as important by the survey group.

There was general agreement that training in risk management and practical experience in EOTC activities were essential and that an understanding of Safety and EOTC (2002) was crucial. The importance of environmental and sustainable practice were
The training and qualification needs of teachers leading education outside the classroom

highlighted along with cultural awareness, group management, leadership training, legal responsibilities and curriculum links.

The respondents considered that beginning and student teachers needed to understand the complete process including planning, leadership and evaluation. Their legal obligations were seen as important and this responsibility included the Health and Safety in Employment Act (1992), the National Achievement Guidelines, and the Graduating Teacher Standards by demonstrating a commitment to and strategies for promotion and nurturing of the physical and emotional safety of learners. They also felt that the design of professional learning and development opportunities for teachers leading EOTC activities, including qualifications, should include knowledge and understanding of legal responsibilities.

2. Training pathways, including qualifications, which are relevant for teachers who lead EOTC activities,

While training or a qualification in first aid was universally accepted as necessary, participants proposed that teachers should be appropriately trained in skills that aligned closely with their individual school’s programme.

There was general agreement by the focus groups that teachers leading activities in the school grounds should have training in risk management, first aid, and sustainable practices. One focus group considered that a trained teachers’ qualification was sufficient. Quote “If pre-service teacher education included an introduction to EOTC, risk management, Safety and EOTC and practical EOTC experiences, a trained teacher qualification would be adequate”.

Training rather than qualifications for low level EOTC activities was important but those who lead high risk activities needed relevant qualifications. High risk and high technical activities required activity-specific, experience, training and qualifications at the leader, instructor and trainer/assessor levels.

Most focus group participants felt that to lead EOTC activities in the local community and day trips in lower risk environments/lower technical skills, a first aid qualification and training in risk management and sustainable practices were required. As the level of risk increased so the need for training and qualification requirements increased. Two focus groups emphasised training in risk management rather than a qualification. In higher risk environments and where higher technical skills were required a first aid qualification was seen as essential and risk management and sustainable practices were seen as important.

It was considered that there was a need to develop and provide clear, sequenced and appropriate pathways for activity-specific leader and instructor level training and qualifications and to support revalidation of these qualifications. It was considered that these should cover four of the most frequently provided activities: tramping, rock climbing, kayaking, and abseiling. Other areas to be considered were challenge ropes course qualifications which were a priority for secondary teachers and snow sports for composite schools.
There was a clear need for parties involved in EOTC, for example, schools, outdoor providers, Ministry of Education and pre service teacher education providers to collaborate in the design of a range of appropriate training and qualifications suitable for teachers leading EOTC activities.

There was strong support for swim teaching training for primary and for relevant secondary teachers involved in swimming programmes

3. The support that needs to be in place to ensure EOTC leaders’ training and qualifications meet current, accepted practice standards.

Both the survey and focus groups identified that adequate Ministry of Education support was seen as a high priority. Clear relevant training and qualification pathways for teachers and advisory support in each school support services region were also seen as important. Targeted funding was seen to offer best value for money. This included money for teacher release and professional development.

That the Ministry of Education and outdoor educator providers needed to support teachers and other staff to understand and be able to implement key principles and best practice guidelines for EOTC e.g. Safety and EOTC, a good practice guide for New Zealand schools, Outdoor Activities, guidelines for leaders and Outdoor Safety Risk management for outdoor leaders. This support should be on going.

Teachers need support to take advantage of training opportunities that enhance their leadership of EOTC activities including risk management and first aid.

There was support for the establishment and maintenance of a co leading or mentoring system that would support pre-service student teachers and inexperienced teachers to gain skills, confidence and competence in leading EOTC activities, particularly in risk management, group management, and activity leadership.

Opportunities to assist and then co-lead activities were seen as important in the development of EOTC leaders. The focus groups identified that this needed to be a cyclic process: including training, implementation, reflecting, cross checks, and peer review.

Education for Sustainability (EfS) was identified as an area where more support was needed for teachers leading EOTC in relevant professional learning opportunities.

Conclusions and Recommendations

One of the interesting features of the research was the consistency of the responses to both the survey and the focus groups. The participants agreed that EOTC encompasses a wide range of activities and is an integral part of effectively delivering the curriculum in most New Zealand schools. There was universal agreement about the importance of implementing accepted best practice when leading EOTC activities. The research also found that there was widely perceived benefits for students, staff and parents when teachers leading EOTC activities are trained and qualified. Focus group participants believed that experience
was a crucial factor in effective leadership of EOTC activities. Participants in the research believed that teachers leading EOTC activities needed to be able to manage risk, and deal with emergencies and incidents. An understanding of Safety and EOTC was considered crucial to leading safe and effective EOTC activities. While training or a qualification in first aid was universally accepted as necessary, participants proposed that teachers should be appropriately trained in skills that aligned closely with their individual school’s programme. Participants emphasised the importance of training rather than qualifications for low level EOTC activities, but felt those who lead high risk activities needed relevant qualifications. There was strong support for swim teaching training for primary school teachers.

The situation in New Zealand differs from that in a number of other countries where teachers are legally required to hold recognised qualifications in order to lead certain EOTC activities involving risk (mainly outdoor pursuits). For example, several Australian states require leaders of certain EOTC activities to hold qualifications and the United Kingdom recently approved additional funding to support teachers to gain qualifications. These qualifications may serve as models for the future of EOTC leadership in New Zealand schools.

This research has only started to explore the challenging question of the training and qualification needs of teachers leading EOTC activities. Future research could consider the following questions:

- What should be included in training or qualification of teachers leading EOTC and to what depth?
- What experience is needed?
- Are leaders with qualifications able to manage EOTC activities more effectively and safely?
- What would be the most appropriate training and qualification pathways?

This research recommends the following for schools, training providers, outdoor providers and the Ministry of Education.

**Key recommendations include the following.**

- Pre-service teacher education providers should provide student teachers with foundation level training in planning and leading EOTC activities.

- Schools should provide all staff who led EOTC activities with opportunities to undertake training and qualifications, at foundation level, in first aid, risk management and understanding and knowledge of the Ministry’s EOTC guidelines, *Safety and EOTC*. They should provide further opportunities for higher level qualifications to appropriate staff.

- The outdoor sector should develop and provide clear, sequenced training and qualification pathways at all levels. These pathways need to be relevant for teachers and
student teachers who lead EOTC activities, meet accepted best practice standards and follow Education for Sustainability (EfS) practices.

- The Ministry of Education should identify relevant resourcing to schools so staff can access a range of relevant professional development opportunities that support teachers who lead EOTC activities e.g. access to Teachers’ Study Awards and scholarships, the Enviroschools Foundation and Education for Sustainability advisors.

- The Ministry of Education should be clear in all communications with schools, about the need for staff leading EOTC activities to have appropriate experience, professional learning and qualifications that meet accepted best practice standards in the outdoor sector.

- Schools, the Ministry of Education, the outdoor sector and teacher education providers need to work collaboratively to ensure that all teachers leading EOTC activities meet accepted best practice standards and are supported in this by guidelines that promote the value and benefits of EOTC with clear linkages to the New Zealand Curriculum and Te Marautanga o Aotearoa.

- Ensuring relevant qualifications are developed that contribute to clear professional learning and qualification pathways for outdoor leaders, including teachers. Such qualifications and pathways should align with EfS and take account of cultural diversity.

References


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SECTION 2:

Practical Application of Science in Health and Physical Education
Neuromuscular training programs to reduce sports injuries – an Australian approach

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Abstract

Sports injuries reduce sporting performance. Also, sports injury and the fear of possible sports injury have been found to reduce participation levels in physical activity. Numerous studies conducted internationally have demonstrated the effectiveness of neuromuscular training programs in reducing sports injuries, including in youth sports. (Olsen et al 2005, Pasanen, et al 2008). Additionally, some studies have shown a commensurate increase in sporting performance from the same exercise based interventions (Arnason et al, 2004). These beneficial neuromuscular training programs can be introduced into standard sports team training by coaches of all levels and with minimal equipment. However the uptake of the use of these neuromuscular training programs has been slow in Australia so far. In 2008 Sports Medicine Australia Queensland Branch developed a course based on the best available evidence on how to implement neuromuscular training programs in sports teams of all levels. The course is aimed at coaches and PE teachers so as to learn the basic principles and components of a neuromuscular training program that can be tailored to the specific demands of their sport, but also includes an overview of some other evidence based sports injury prevention techniques, including the importance of sports injury surveillance. Course participants have the opportunity to participate in ongoing research to assess the effectiveness of these interventions within their local setting.

Keywords: Sport, Injury, Prevention, Neuromuscular, Training

Introduction

Injuries are a risk associated with participating in sport and active recreation. As well as the obvious effect of sports injuries reducing sporting performance they also have wider implications for an individual’s well being, and in turn have a significant effect on public health.

Approximately 5% of sporting participants sustain an injury during sport on an annual basis, and 27% of those who sustain an injury during sport or recreation require medical treatment (Finch and Cassell, 2006). Sports injury and the fear of possible sports injury have also been found to reduce participation levels in physical activity which in turn has a commensurate negative effect on a person’s health.

Approximately 20% of Australian adults do not participate in adequate physical activity because of injury or disability (Finch et al 2001). One in four parents have been
found to discourage or prevent their children from participating in some sports or forms of physical activity because of concerns about safety (Boufous et al 2004).

**Approaches to Sports Injury Prevention**

In 1992 van Mechelen et al published a paper that proposed a cyclical model for the prevention of sports injuries that showed the need for:

1. Injury surveillance and data collection
2. Root cause analysis to identify causes
3. Development and implementation of appropriate safety measures
4. Ongoing evaluation by repeating step 1.

While there had previously been research into interventions to reduce sports injuries before the publication of the van Mechelen paper, the concept of broad based injury surveillance and reporting had not widely permeated most sports or sporting organisations beforehand. Since the publication of van Mechelen’s paper there has been a gradual improvement in injury surveillance systems which have allowed more accurate quantification and recognition of the magnitude of sports injuries. However, most of the injury surveillance currently occurring largely does so at the elite or professional levels of sport.

In Australia, while some sports such as AFL have collected competition wide injury surveillance data on an ongoing basis for several years, there has been little or no injury surveillance occurring at the community level. Without adequate injury surveillance measuring the effectiveness of broad based injury prevention programs is difficult, if not impossible.

In some countries though the recognition that sports injuries can add to the burden of disease and costs to the health system has given rise to major programs dedicated to sports injury prevention. For example in New Zealand the Accident Compensation Commission has developed and published a range of resources devoted to sports injury prevention.

A large number of the injuries that occur during sport are musculoskeletal, especially of the lower limb. Muscular and ligamentous injuries of the thigh, ankle and knee cumulatively account for more time lost from participation in sport than any others. As a result many research studies have looked at methods to reduce such injuries and many of these studies have demonstrated very clearly that lower limb sports injuries can be effectively reduced. In particular several scientifically conducted research studies have found that a Neuromuscular Training programs (NMT) can reduce the risk of lower limb injuries in athletes.

For example, Olsen et al in 2005 published the results of a large trial involving 1837 Handball players aged between 15-17 years. They found that moderate and major acute injuries of the ankle and knee in the group utilising a neuromuscular training program were 4.8% compared to 8.6% which translates into a relative risk ratio of 0.53 (with a 95%
confidence interval of 0.35 to 0.81). Several other studies have found similarly powerful results with other sports.

As well as reducing the overall number and severity of injuries neuromuscular training programs have been found to increase the performance of teams. For example a scientific study conducted in 2004 by Arnason et al found that teams who adhered to a fitness training and musculoskeletal injury prevention program demonstrated a significant improvement in team success compared to a control group. This is a powerful incentive for coaches to incorporate such programs into their pre-season and in-season training.

In some parts of the world specific sports injury prevention programs have been developed that are based on the research on neuromuscular training programs. These specific programs have been designed to assist coaches and players of all levels transfer the scientific evidence into readily deliverable programs. An example of this is the F Marc 11 developed by FIFA and described further below.

However despite the strong evidence of the effectiveness of the use of such programs Australia has been relatively slow on the uptake of some of the latest approaches and on evidence based sports injury prevention in general compared to many other parts of the world. Though having said this Australia has been strong on “traditional” models of injury prevention such as the use of general warm up and stretching programs, the use of effective protective equipment, and rule modifications designed to improve safety. So much so in fact that it may be that the pervasive awareness of these older approaches to injury prevention has in fact had a retardant effect on the adoption of new approaches, particularly if they have evolved overseas.

The F Marc 11

The F Marc 11 is a soccer specific injury prevention program developed by FIFA and based on some of the effective evidence based exercises identified by the Oslo Sports Trauma Research Group scientists and other researchers. Also known as "The 11" the program is an example of a neuromuscular training program that comprises specific exercises along with the promotion of Fair Play.

The Fair Play concept was included as other research has consistently identified that a disproportionately high number of injuries occur in game situations involving illegal, excessively rough or careless play.

The advantages of the F Marc 11 include that it requires no equipment other than a soccer ball and that it can be completed in 10-15 minutes and in doing so it improves core stability, thigh muscle strength, proprioception, speed, power and skill. Furthermore it is easy to follow, well described and FIFA have developed resources including videos of the exercises that can be downloaded from the FIFA website for free, so all coaches can access and implement it.

The major disadvantages are it is very much soccer specific, and even for soccer players and coaches it lacks variety, which possibly has a negative effect on long term compliance.
The SMA QLD Sports Injury Prevention Program

In 2007 Sports Medicine Australia QLD Branch developed a plan to develop a course on evidence based Sports Injury Prevention (SIP) that would be suitable for local needs and uptake. The goal of the application was to make available a sports injury program that would be readily adoptable by coaches of all levels across a range of sports. In 2008 development of the course commenced with the assistance of health professional members of SMA and with partial financial support from a Queensland Department of Sport and Recreation Priority Initiative grant.

The prime purpose of the course was to demonstrate an easy to use, evidence-based program of exercises that aid injury prevention that can utilised by sportspeople and teams of all levels, based on a broad ranging analysis of some of the recent research conducted internationally on sports injury prevention.

The primary intended audience for the course are coaches, sports trainers, and players of sports at all levels, but it will also be useful for physiotherapists, podiatrists, exercise scientists, strength and conditioning coaches, PE teachers and other health professionals working with the sporting and physically active population. The course includes a printed manual and a DVD that demonstrates some of the specific exercises.

As a large proportion of the injuries that do occur in sport are musculoskeletal injuries, especially of the lower limb, the course has an emphasis on the use of neuromuscular training programs that have been proven to be effective in reducing injuries.

Further goals of the course were that all the exercises selected can be performed with minimal equipment so as to decrease barriers to adoption, and also that the program can be easily adapted to the specific requirements of a particular sport. This part in particular is one of the defining differences between this program and the sports specific programs such as the F Marc 11.

While there is a focus on reducing lower limb injuries the SMA QLD course also has information about other types of sports injury reduction such as concussion, dental injuries and environmental injuries.

Lastly, the course also includes information for clubs and coaches about how to implement sports injury surveillance as part of a larger project to evaluate the effectiveness and uptake of the interventions described within the course.

Neuromuscular training programs

A neuromuscular training program (NMT) is essentially a program of exercises that are designed to improve a player’s movement skills, body control, and sports specific coordination, and this makes them more capable of playing safely in their sport. Another benefit is that they can also increase the player’s overall skill and as a result this can improve their ability to perform the intrinsic movements such as running, jumping, sidestepping etc, associated with their sport.
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The theory behind NMT programs is that being able to respond quickly and appropriately reduces a person’s likelihood of being in a position where an injury could occur. Also, increased speed, strength and coordination are also likely to increase a person’s skill when performing sporting techniques.

In developing the course SMA QLD developed a program based on several published studies that have examined the benefit of using neuromuscular training programs, in particular the program used by Pasanen and co-authors in their study published in 2008 in the British Medical Journal. This study showed a reduction in injury risk of nearly 70 per cent in teams that adhered to the program.

In summary there are 5 main groups of exercises, some of which are described in more detail below. In each training session 2-3 exercises are chosen from each group. These 5 exercise groups of the NMT are:

1. Running exercises
2. Balance and body control exercises
3. Plyometrics
4. Strengthening exercises
5. Stretching exercises

Altogether a full program can be performed in approximately 20-25 minutes and the program should be performed 2-3 times per week. In the book and the course there is more information about how to put these exercises together as a program.

In regards to its composition the SMA program is very similar to the programs found to be effective by Pasanen, Arnasen and Olsen or even the F Marc 11. The main differences are is that it is less prescriptive than programs such as the F Marc 11 and less clearly delineated to the purposes of a specific sport such as the program developed by Pasanen for Floorball players, although the exercises are fundamentally very similar in terms of the goals and techniques used. Because of this it can be adapted to any sport that involves running, cutting, jumping, landing or other change of direction manoeuvres. One of the expected advantages about this program is that as well as being useful for many sports it additionally gives scope for more flexibility to the players and coaches to vary the program for the sake of variety and specific identified need of individual teams and players. In the book and DVD there are several exercises in each group to assist the coaches in having options to choose from.

**Running exercises**

As an example some of the running exercises that could be used include forward running with knee lifts and butt kicks which increases running strength and flexibility, carioca running to improve coordination and the ability to change direction while running, or zigzag drills to improve speed and control during sideways movements.
Body control exercises

Several of these exercises involve the use of a balance board or mat, or some other form of unstable surface that simulates the demands on the player associated with uneven surfaces and sudden changes of direction that affect a person’s centre of balance. These drills can also be made sports specific very easily by altering the type of sports equipment used. The body control exercises range from simple to complex, and all can also be progressed as player skill increases.

For example the single leg squat on a firm surface is a relatively simple task that increases leg strength and balance, but it can be progressed to a single leg squat on balance mat which gives the additional challenge of a soft yielding surface. An example of a more complex exercise is the Figure of 8 in single leg stance exercise which involves a movement pattern that involves several muscles and changing directions of movement.

Some of these exercises have been independently researched to determine their individual efficacy in reducing injuries. For example Verhagen et al (2004) in a large scale research trial involving 116 male and female Dutch volleyball teams found that teams that followed a prescribed program of exercises using a proprioceptive balance board program had significantly lower numbers of ankle injuries than the teams in the control group, who followed their usual training program.

Plyometric exercises

Plyometric exercises help to develop explosive power output such as in jumping. For example, drop jumps from a box helps to improve jumping power and technique, and also safe landing strategies. Some of these exercises have a fairly high degree of complexity and proper body alignment is important for optimal benefit. The SMA course demonstrates the correct performance and body positioning of several plyometric exercises.

Strengthening exercises

The goal of the strengthening exercises is to improve core body stability and muscular strength and muscle balance. Once again some of the demonstrated exercises have been independently assessed as having efficacy to prevent injuries. As a particular example, eccentric strengthening of the hamstring muscles in the reverse Russian curl exercise has been found to be protective for hamstring strains in the study conducted by Arnason et al (2007) amongst Norwegian and Icelandic soccer teams, so much so the exercise is now often commonly referred to as “Nordic hamstrings”.

Stretching exercises

In recent years evidence has emerged that stretching exercises do not have the high degree of protective benefit generally thought previously. (For example, Pope and Herbert, 2000). However in the neuromuscular training program described by Pasanen et al stretching exercises were prescribed for some of the participants if indicated by a relative degree of measured inflexibility. A similar approach is taken with the SMA program.
Implementation and evaluation

During 2009 and beyond SMA Queensland Branch will deliver the sports injury prevention course to sporting organisations and coaches of all levels. Sports teams will be encouraged to implement a neuromuscular training program based on the information provided in the course. Further, sports teams will be encouraged to collect sports injury surveillance data with a template provided by SMA. From the data collected ongoing longitudinal data will be collected to evaluate the uptake and efficacy of the program in Australia.

It is anticipated that the program will provide schools, sports clubs and other sporting organisations with valuable information and tools to implement sports injury prevention procedures. It is further anticipated that this information will assist sporting organisations to fulfil their duty of care towards sporting participants while also increasing the likelihood of sporting success for those teams who comply with the recommended neuromuscular training program.

Conclusion

A number of high level research trials have demonstrated that sports injuries, especially of the lower limb, can be reduced with properly constructed neuromuscular training programs. Sports Medicine Australia has developed an evidence based neuromuscular training program that is appropriate for sports teams of all levels in Australia including at the community and school sport level. It is anticipated that compliance with the recommended program will increase sporting performance and decrease the number of sports injuries in sporting participants of all levels.

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Pedagogy for an individualised PE program: Contemporary information communication technology and new media

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Abstract

21st century teaching resources should reflect 21st century pedagogy and 21st century learning styles. The production and availability of digital learning objects and digital video clips make it imperative for teachers to use new pedagogical strategies that utilise these resources to the fullest extent. Students demand more interactive learning opportunities and hands-on activities that utilise technology and create interesting and authentic avenues for exploring information and research. Students today are quite adept at managing their own learning and in creating their personal responses using multimedia. Given the software and hardware needed, they are unafraid of expressing their understanding in new and divergent ways and creating new knowledge. Critical understanding of what they can produce and how they can produce it is vitally important even from an early age. Creative students can think multi-modally and understand the integration of image, sound and text and transfer this knowledge and understanding to their own digital works. But they also need to learn to discern the good from the bad, the amateur from the professional. The really good students can then select and manipulate the best elements to produce their own digital learning objects.

Keywords: Multiliteracies, Kahootz, Television, Personalisation

Introduction

The importance of creativity in a 21st century curriculum program cannot be underestimated. Children today have ready access to many and varied technologies that serve up visual and text based information, so they are constantly consuming what others have devised. While many literacy educators recognise the importance of mass media in our lives and invest time to deconstruct and analyse the inherent meanings and messages, very little time and teaching is given to students experimenting, designing, creating and producing their own digital media where they can provide their own understandings and narratives.

You only need to watch children play a video/computer game to observe their fascination and focus with interactive digital technology. They are inquisitive, playful and critical. They are constantly problem solving and thinking about how they can get to the next level, how they can beat the ‘creatures’ and how they can access the prize at the end. Aligned with this is the implicit understanding of how the game works, the language involved, the tools to use and exploit and the required time to become the ‘hero’. What if these children had the capacity to design and construct their own game, their own learning tool, their own
online site? What decisions would they need to make, what knowledge would they need to incorporate and draw from, what languages and literacies would they need to recognise?

This is the quest that many classrooms have already engaged in. Teachers have recognised the power of creativity to draw upon deep thinking and relevant knowledge in an authentic context such as the development of a personal learning tool. At Carlton PS, NSW, students in Year 4 have designed and created their own 3-D learning object based on the Health and Physical Education theme, Olympic Games. In doing this they used the creator program, Kahootz, to position objects in a selected environment and add text to enhance their understanding about the topic, and demonstrate athletes competing in their expert sport. Kahootz requires them to make decisions re size, proportion, spatial relationships, colour, movement, background, texture, sound and form, among others. Students worked in pairs collaborating and negotiating the look and style of the environments, what information text explains their ideas and highlights their meaning through a selected sequence of movements. Are these not the same processes of inquiry and construction that every teacher wants students to demonstrate? Not only do the students share this understanding with their peers they also self evaluate and are constructively supported with suggestions for improvement by their peers and the teacher. The personal learning objects are then uploaded as a cooperative exercise but can be viewed as individual components.

For many teachers however the prospect of making their students work available online for others to see is one fraught with potential pitfalls and somewhat dubious benefits.

Whilst a relatively small number of teachers have embraced the world of online publishing as a means of stimulating and engaging students, many others are deterred by the uncertainty surrounding some of the following issues. Is the work of my students good enough to warrant uploading for all to see? Are there unforeseen copyright issues? Is parental approval required? What are the tangible learning outcomes involved?

Many of those teachers who have embraced the benefits of online publishing and collaboration for their students argue that non-participation challenges the teacher’s relevance in a digital world their students are increasingly immersed in.

You can’t really know the experience of dance unless you have danced, you cannot truly understand tennis unless you have played tennis and similar is true of digital technologies. Children from a young age need to experience the creation component of technologies to be genuine discerning consumers of mass media and digital technologies. For children in the middle years particularly, there is a distinct disparity between home, school and virtual cultures. It has been found that this disparity may contribute directly to alienation and disengagement having immediate and material outcomes in post-school and out-of-school pursuits.

We want our children to be savvy, active constructors of meaning who contribute new knowledges and understandings. Children who have accessed technologies from an early age are more confident creators and instinctively understand the codes and conventions of the system. They do not seem frightened to make a mistake, as very few adults actually know about this ‘stuff’. Their friends help through online communication and those friends
probably got assistance from their friends or older siblings… and the knowledge was passed from friend to friend as ‘cultural currency’…

But this ad hoc ‘discovery and do’ approach can be hit or miss as far as quality of work produced for internet display. Without guidance in visual/screen literacy, technical knowledge and skills, the power of the student message can be unclear and understated. Important to the process is the teacher’s planning to provide the structure for realising successful visual communication. Evidence from many teachers suggest providing open-ended tasks that allow students to analyse and evaluate options for communicating meaning though manipulation of design/ aesthetic components, research and selection of succinct content, plus knowledge of the technical capacities of the software is recommended. Students also need to be equipped with information about ethics and correct referencing, private and public disclosure, permissions and copyright so that they are actively involved in the evaluation of their own materials for publishing. A clear system of quality assurance (QA) is necessary for success.

‘A 2003 survey by Amanda Lenhart, Deborah Fallows and John Horrigan found that 44 percent of America internet users have used it to publish their thoughts, respond to others, post pictures, share files or otherwise contribute to the explosion of content. The web is now a printing press for the masses, and so readers themselves must learn to be critical consumers of the information. They must be editors with all of the information literacy skills they need to discern good information from bad.’

David Nettlebeck, Computers for thinking: from theory to practice, Teacher, June 2007

**CYBERSPACE** is defined by Encarta as

- An imagined place where electronic data goes. The notional realm in which electronic information exists or is exchanged.

A virtual reality that is an imagined world.

**COMMUNICATION** is defined as

- the exchange of information between individuals, for example, by means of speaking, writing, or using a common system of signs or behaviour
- a spoken or written (and visual) message
- the communicating of information
- a sense of mutual understanding and sympathy

Together these two words predict the future and if we do not acknowledge the technology revolution, we will fail to understand the needs of youth today and tomorrow. The digital electronics industries have not only changed communication practices; they have also changed us: how we learn, how we use language, how we understand and communicate, how we exert behaviour, think and imagine. These industries have changed our environments, our society and our culture. They can save the world and also destroy it.
Today’s children/students were born into the technology revolution and many, from developed countries, do not know life without digital communication. How they learn is very different from the past. For most, they were not taught how to use the ‘bits and pieces of technology’, they ‘play’ and deconstruct to understand the mores and modes of delivery before reconstructing this knowledge for other platforms and newer upgrades. Technology has invaded their life from a young age and they are comfortable to absorb each new wave. In an Australian household, the average 15 year old child/student today can

- upload new software to their computer without reading the instructions
- ‘google’ search and down load copious amounts of information on the internet at the click of a button (and show utter contempt if the broadband is not fast enough)
- know, operate and control every function of a wireless, digital mobile phone
- expertly understand and accomplish the multiple levels of an online / video game
- record and view films and TV shows via free, cable and digital television, DVD players, a miniature Playstation and internet broadcasting
- download podcasts of radio and television favourites (and listen to them as they complete homework)
- create weblogs, wikis and their own digital profile on MySpace and view other people’s from anywhere in the world (and talk to them via video phone)
- digitally take and manipulate still and moving images using a digital camera, upload them and share them with everyone via YouTube
- listen to online music and read an digital book…. from every generation, culture and genre via an extensive library of (free and PAYG) recordings and writings
- join a community, voice an opinion and protest against anything via a blog and vblog
- tell the time and find true love
- write an email to a friend, family member or work colleague
- pay bills, check their bank account details, apply for a job or passport etc.. online
- do their homework, research and write an assignment (at times, plagiarise others work and get away with it..or not!)
- create a movie, animation, poster, card, presentation, music, business etc…
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- buy and sell, send and receive
- catch a virus, be a pirate and crash a hard drive
- among many others…

How did they learn these things? Did they learn them at school? Did they learn them at home, therefore did their parents teach them? How did they become so knowledgeable and competent?

For most, they ‘played’ and they started to instinctively understand the codes and conventions of the early systems and platforms. They were not frightened to make a mistake as very few adults actually know about this ‘stuff’. Either they worked it out for themselves or they had friends who helped and those friends got assistance from their older siblings….and the knowledge was passed from friend to friend as cultural currency…Much of what they learned could be reapplied to other electronics and the cues and menus of the past became the support for the newer and faster versions.

Education Queensland’s Literate Futures Strategy, 2004

More and more the technical knowledge about computers and their operations are starting to be presented by the school and the opportunities for students to apply their knowledge in diverse learning areas and hi-tech learning centres are becoming the norm. 15 years ago it would be difficult to find more than a handful of computers in schools. Many teachers found it alien to engage with the language and functions of computers and unless you were teaching ICTs, then we avoided using them for learning in other subjects. But today schools are being highly resourced with multiple notebooks and laptops for teachers and students, fast wireless internet, networked environments (internal and external access) with multiple software learning programs, data-projectors, interactive whiteboards and e-portfolios (digital folios) for every student. Teachers cannot avoid their responsibility to engage students with discipline learning supported by digital technology.

‘Computers are providing us with a whole new way of thinking about teaching and learning. They’re changing society and schooling much as the printing press did 600 years ago….. It’s not just a matter of adding another trick in the teachers’ tool bag but recognising that computers can be a transformative tool which enables us and our students to think and act in a whole new way about teaching and learning.’
David Nettlebeck, Computers for thinking: from theory to practice, Teacher, June 2007

Schools are investing heavily in computer hardware and interactive software to engage students with available technology. Education authorities spend enormous sums of money every year to expand access and maintain equipment. But to truly harness what technology has to offer to education, is to also tap into how students learn ‘in, through and about ‘communication technology. Teachers need to understand and utilise the new evolving languages (written, spoken and visual), technology’s capacity for engagement and creativity, its multi – dimensional modes of delivery and the positioning of an emerging digital culture that the young quickly identify with. Providing opportunity to understand this culture and being able to read information and messages clearly is vital for young people to find their place in the world. Multi-mediated information and mass communication underpin successful industry and commerce. Industry has harnessed and driven the impact of technology providing new skills, knowledges and processes.

‘This new emphasis on 'reading' multimodal texts, particularly in the context of the Internet, suggests that we need to teach our students how to read or as Burbules (1997a) says, 'hyperread', critically...New media introduce new contexts, and changes in contexts mean that there are differences in practices. But at the same time, there is some continuity between these emergent practices and those practices which are more familiar.

Our aim as educators should be to foster a sceptical and discerning approach towards all the texts we encounter. Burbules reminds us that critical users of the new technologies require:

- Multiple strategies for finding information
- Ways to be selective about what they find
- Multilayered ways of judging credibility

Critical users will also need to find ways of judging the credibility of sources. This may be achieved by posing a series of questions:

- Who is the provider of the information?
- What are the qualifications and position of that provider relative to the topic?
- What sorts of interests may be at work in presenting the material in one light rather than another?
- How is the material organised?
- What assumptions are revealed by the categories used?
- What categories are not included?
What assumptions do the links reveal?

What isn't here?

Whose interests are being served by this information and by this presentation of information?

Burbules (1997b) then asks: How do we apply these faculties of critical hyperreading across media sources? He argues:

Critically reading images, music, video and so forth are not all the same as reading written text. The particular way in which hypertext/multimedia juxtaposes text, images, music etc becomes itself a dimension of reading. The elements of multimedia graphic design, completely apart from the 'content', are themselves a way of expressing ideas and relationships. We need to engage in discussions, based on these kinds of questions and approaches, to reflect upon the procedures and criteria by which we make judgements about the relative quality of information.'

Dr Ilana Snyder, New Literacies for the Twenty-First Century: From Page to Screen, 2002

To assist students to cope with these requirements, teaching strategies need to include 21stC tools, delivered in 21stC contexts, using and accepting 21stC languages making meaning of the world for our students.

‘Students are quite comfortable transmitting their own messages through visual, auditory and printed means. Look around and you’ll see an increasing use of visual text. Visual literacy isn’t a matter of pretty graphics, a few pictures and some online links to make a piece of ‘text onscreen’ look interactive…….Visual literacy is about the ‘blended system of linguistic and non-linguistic sounds, and visual representation of digital and electronic media’ and student mastery of this requires ‘the so-called multiliteracies that entail the processing, interpretation and critical analysis of online and onscreen sources of information that blend print information with visual, audio and other forms of expression’

Computers for thinking: from theory to practice, David Nettlebeck, Teacher, June 2007

Authentic and relevant teaching strategies should engage students at all levels: strategically and operationally, therefore, thinking/problem solving/enquiring, creating/inventing/producing and reflecting/evaluating/appraising.. or whatever enquiry approach for critical thinking! They also need to reflect the ‘new’ culture and mores, be entertaining as well and educating, be ethical and global. They should incorporate multiliteracies where students read, speak and manipulate ideas and technologies. Visual and Media literacies are identified as essential and are taking a more dominant role in curriculum. The viewing and reading strands of the English syllabus and the Visual Arts and Media strands of The Arts provide vital opportunities and skills for students to engage with visual literacies in a multi-mediated way. All curriculum areas are responsible for technology
strategies and married with media literacy approaches, schools can come close to educating students to be critical and discerning consumers of media and its new reality in cyberspace. When we refer to cyberspace, we are promoting unlimited options for communicating globally and with ‘anyone and everyone’. In this virtual world, created with computers, we can view, read, speak and create. We can be ourselves or create a whole other persona.

‘Some 55% of online teens have profiles and most of them restrict access to their profiles in some way. Of those with profiles, 66% say their profile is not visible to all internet users. Of those whose profile can be assess by anyone, nearly half (46%) say they give at least some false information. Teens post fake information to protect themselves and also to be playful or silly’.

Amanda Lenhart, Mary Madden, Teens, Privacy and Online Networks: How teens manage their online identities and personal information in the age of MySpace, PEW / INTERNET

‘If the new technologies are seen as important media for communication and accessing information, then we have to consider issues of content - gaining skills in finding what is worthwhile and avoiding what is not. There is much that is crass, dull and unedifying, but there is also much that is important, useful, interesting and entertaining. The problem is telling the difference. The pedagogical challenge includes not only technical know-how, but is also a matter of providing users with critical skills to assist them in becoming discriminating. The pedagogical challenge is also to provide workable heuristics - rules of thumb to use in these spaces without getting lost, frustrated or discouraged.’

Dr Ilana Snyder, New Literacies for the Twenty-First Century: From Page to Screen, 2002

The Australian Children’s Television Foundation has excellent media literacy resources to engage students in exploring their digitally orientated world. Media literacy is a perspective from which we expose ourselves to the media (digital and print) and interpret the meanings of the messages we encounter (Potter, W., 1998:5). The more media literate a person is, the more control he or she has over media messages because possibilities and options of interpretation are identified.

**Practical Exploration of Kahootz 3.0 and ACTF Resources in the Health and Physical Education**

What is a digital learning object, where can they be found and how can teachers utilise them to encourage deep thinking, communication, and understanding? Similarly, how can students create their own digital learning object using Kahootz 3 and other multimedia authoring programs?

Show a range of Kahootz Expressions, the features of Kahootz and this can be used practically in the Physical Education classroom to engage students to make their own games and movies in order to demonstrate their learning. Participants will be given examples how
KAHOOTZ 3.0 provides students and teachers with the opportunity of multi-modal authoring by either/or:

- taking on the role of editor
- director, inventor, story teller and game maker all at once
- creating amazing animated 3D stories that fly through cities, jungles or underwater
- making their own interactive games
- recording and importing their own voice narration
- using their own images and being able to become a character in the 3D world.

KAHOOTZ 3.0 provides educators with a 3D animation program that can cater for student’s diverse contemporary learning needs, styles and paces. Importantly this program can help to create an equitable learning environment whereby students can direct their own learning, challenge themselves and further develop their skills and understanding of thinking processes, authoring, critical analysis, and creative composition.

The ACTF productions of ‘Lockie Leonard’ and ‘Mortified’ and the links to personal development will also be explored. This will include the health themes of:

- adolescence
- identity and individuality
- peer pressure
- coping with challenges
- positive thinking

References

Australian Communication and Media Authority, Review of the Children’s Television Standards (CTS), 2007


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Influence of bicycle-environmental factors on leisure cycling

Yong-jin Kim and Kun-hyuck Ahn
Seoul National University, Korea

Abstract

With growing concerns over vehicle congestion and air pollution, bicycle is recommended as an alternative transportation. This interest is also prevalent throughout Korea, and there are many plans to build a bicycle infrastructure. In Seoul, there had been invested to uprise bicycle using ratio. However, less than one percent of all commuters cycle to work. This is because there is not standard for the bicycle infrastructure and there was not any consideration about user's satisfaction. This study aims to examine the relationship between bicycle environment and bicycle leisure activities in Seoul. Based on survey questionnaire addressed to bicycle users who live in Songpa-gu which has the highest rate of bicycle commuter, the obtained data for the indicator were analyzed through Path Coefficient Analysis. This article will be useful to change bicycle environment by examining bicycle environment quality as well as developing new method that integrate qualitative variables into the estimating indicators for the bicycle environment.

Key-words: Bicycle leisure activity, Bicycle path, Bicycle lanes, Bicycle parking lot, Bicycle infrastructure, Bicycle environment

Introduction

Bicycle is the most important transit considering recent sudden rising of oil price, traffic problem, and environmental issue. In 2008, the Korean government announced the green new-deal policy which contains building of national bicycle path network. In case of Seoul, there is a plan for enhancing bicycle use, and there are lots projects building bicycle infrastructure such as path and parking lot. Also, most local government in Korea has a plan to build bicycle infrastructure. However, the ratio of bicycle use in Korea is less than 2.4%, and the ratio of bicycle commute is less than 1%. This is because of that the construction of bicycle infrastructure was conducted without considering user's perspective. Actually most bicycle path in Korea had been built in whether the construction was easy. In consequence, to encourage bicycle use it is important to carry a careful analysis of bicycle use and bicycle environment.

In case of Korea, there is few research of bicycle use. It is because of that there is not much information or data on bicycle use. This study aims to analyze the relationship between the bicycle infrastructure and the bicycle use. Also, the analysis of which design factors of bicycle infrastructure are important was conducted.
Literature Review

Several studies have been done on bicycle use. Most of them found out that temperature, weather, slope, age, race, employ, occupation, population, and bicycle infrastructure affect to the bicycle use. The NBWS categorized factors. First, subjective factors include distance, traffic safety, convenience, cost, valuation of time, valuation of exercise, physical condition, family circumstances, habits, attitudes and values. Second, objective factors include climate, topography, presence of bicycle facilities and traffic conditions. Nelson and Allen (1997) used the data from NBWS to explain the relationship between bicycle commuting and bicycle path, and found that temperature, weather, student, bicycle path are significantly high. Recently, Nelson and Carr (2003) improved on previous research by including those variables, using a larger sample of cities and adding new explanatory variables. Alta Planning+Design (2006) studied that the important factors of bicycle infrastructure, and the connectivity, separation with pedestrian, and main destination are important to make efficient bicycle path.

Also, many studies have been done on leisure cycling. Most studies on leisure cycling were conducted in the athletics field. DijkemaJ (1992) had studied on the social and economical effect of leisure cycling. He found that who cycle more, they are more successful in socially and economically. DavidA (1995) improved that the leisure cycling had a positive influence on the physical and mental health. Boyd(1999) studied on the bicycle policy of public agency, and he found that a community which has more bicycle policy has more healthy residents.

Data & Method

Case Study

For this study, the Songps district unit (hereafter referred to as ‘Gu’ which means an autonomous district of Seoul) was chosen as the case. Also, amount the various bicycle use, the leisure cycling was chosen as the object. This means that the leisure cycling is studied as the representing variable of the bicycle use. In existing research, the variable of bicycle use itself, the variable of bicycle commute, and the variable of leisure cycling were used as the representing variable of the bicycle use. However, it is impossible to survey the bicycle user of the bicycle commuter because of their number is too low in Korea. On the other hand, the leisure cycling is the most important purpose of bicycle use, and with analyze of the leisure cycling, we can find out that which environmental factors are important to encourage bicycle use.

Research Method

For this study aims to analyze the relationship between the bicycle environment (bicycle path, bicycle parking lot, bicycle policy and etc) and the bicycle use(leisure cycling), the survey questionaries were used to collect data. In Korea, there is few data on bicycle use or leisure cycling, so the data should be collected in individually. Sampling size was 200 residents.

The Tobit analysis and the OLS analysis were used to find the factors which have an influence to the leisure cycling. First, the Tobit analysis is used to find whether individual satisfaction for bicycle environments would be affect on individual leisure cycling. And the OLS analysis is used to find which factors of bicycle environment affects on the individual satisfaction on bicycle environments.
Among the variables considered in this study, the bicycle environments variables had been used commonly in the previous research (Jessica Roberts, Norma Moores, Dill & Carr, NBWS, Alta Planning+Design), and they played an important part in explaining this model with other variables. And the variable of individual is chosen from the existing research considering the Korean situation. The individual socio-economic variables and the individual satisfaction on bicycle environments were used as the independent variable, and the number of leisure cycling per month was used as the dependent variable. As the independent variable, the PEQI (perceived environmental quality index) method was used.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>M/F</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>6 Division</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage</td>
<td>O/X</td>
<td></td>
</tr>
<tr>
<td>Cost for Transportation</td>
<td>6 Division</td>
<td></td>
</tr>
<tr>
<td>Vehicle</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>Number of Family Member</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>6 Division</td>
<td></td>
</tr>
<tr>
<td>Bicycle Environments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Path</td>
<td>the Distance from Home</td>
<td>Satisfaction</td>
</tr>
<tr>
<td></td>
<td>the Distance from Destination</td>
<td>Satisfaction</td>
</tr>
<tr>
<td></td>
<td>the Width of Bicycle Path</td>
<td>Satisfaction</td>
</tr>
<tr>
<td></td>
<td>the Separation with Pedestrian Way</td>
<td>Satisfaction</td>
</tr>
<tr>
<td></td>
<td>the Connectivity</td>
<td>Satisfaction</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Incorporated</td>
<td>the Number around Home</td>
<td>Satisfaction</td>
</tr>
</tbody>
</table>
To analyze the factors affecting the individual leisure cycling, the Tobit model and the OLS model were used. First, the analysis was conducted to find the relationship between the number of leisure cycling per month and the bicycle environment which contains the bicycle path, the bicycle parking lot, the bicycle policy and etc. For this analysis, the Tobit model was used. The Tobit model is an econometric, biometric model proposed by James Tobin(1958) to describe the relationship between a non-negative dependent variable and an independent variable. The model supposes that there is a latent (i.e. unobservable) variable \( y_i^* \). This variable linearly depends on \( x_i \) via a parameter (vector) \( \beta \) which determines the relationship between the independent variable (or vector) \( x_i \) and the latent variable \( y_i^* \) (just as in a linear model). In addition, there is a normally distributed error term to capture random influences on this relationship. The observable variable \( y_i \) is defined to be equal to the latent variable whenever the latent variable is above zero and zero otherwise.

\[
y_i = \begin{cases} 
y_i^* & \text{if } y_i > 0 \\
0 & \text{if } y_i \leq 0
\end{cases}
\]

where \( y_i^* \) is a latent variable:

\[
y_i^* = \beta x_i + u_i \sim \mathcal{N}(0, \sigma^2)
\]

If the relationship parameter \( \beta \) is estimated by regressing the observed \( y_i \) on, the resulting ordinary least square regression estimator is inconsistent. It will yield a downwards-biased estimate of the slope coefficient and an upwards-biased estimate of the intercept. Takeshi
Amemiya (1973) has proven that the likelihood estimator suggested by Tobin for this model is consistent. The Tobit model is a special case of a censored regression model, because the latent variable $y_i^*$ cannot always be observed while the independent variable $x_i$ is observable. A common variation of the Tobit model is censoring at a value $y_L$ different from zero:

$$y_i = \begin{cases} y_i^* & \text{if } y_i^* > y_L \\ y_L & \text{if } y_i^* \leq y_L \end{cases}$$

Such generalizations are typically also called Tobit model.

Results

The place of the Songpa Gu

The Songpa Gu is one of the new city which was constructed in 1970s. So the district had a grid system, and it has an effective road system with the hierarchy. And the Songpa Gu is the socio-economic center of the southwest of Seoul. It has a wholesale market, a theme park, a stadium, and etc. Also, there are a lot of public parks such as the Olympic Park, the Asia Park, the Sukcheon Lake Park, the Han-River Park, and etc. Most of the landscape of Songpa Gu is less than 5%. In addition to its condition, it has the longest bicycle path (almost 80km) in Seoul and the most bicycle parking lots (almost 150). There are 4 public free bicycle lending place (with 440 bicycles), public bicycle repair shop, bicycle class, and several bicycle festivals. In another words, the environment of Songpa Gu is good for the bicycle use. In consequence, the bicycle commute ratio is more than 0.63%, and it is the highest ratio in Seoul. Also, there are 6 NGOs are running in Songpa Gu.

The people surveyed

For this study 200 questionaries were distributed and analyzed. The questionaries were carried out in Songpa Gu in November, 2008. The targets of the questionaries were the resident who has a bicycle. Among the 200 questionaries, 156 questionaries which not concluding any data loss were used in this study.

91% of the people surveyed answered the main purpose of bicycle use is a leisure cycling. 25.64% of the respondents are under 20 years old and 28% was student, and this shows the similar status with the data which tells that main bicycle user is teenager. 37% of the respondents earned $40,000~$60,000 per year, and 46% has one vehicle in their house.

<table>
<thead>
<tr>
<th>Division</th>
<th>Frequency (Persons)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>88</td>
</tr>
<tr>
<td>Age</td>
<td>Under 20</td>
<td>40</td>
</tr>
<tr>
<td>Income Level</td>
<td>21 ~ 30</td>
<td>31 ~ 40</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>23.08</td>
<td>16.67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Less than $10,000</th>
<th>$10,000 ~ 20,000</th>
<th>$20,000 ~ 30,000</th>
<th>$30,000 ~ 40,000</th>
<th>$40,000 ~ 50,000</th>
<th>$50,000 ~ 60,000</th>
<th>$60,000 ~ 70,000</th>
<th>$70,000 ~ 80,000</th>
<th>More than $80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>6</td>
<td>18</td>
<td>18</td>
<td>28</td>
<td>30</td>
<td>14</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>0.00</td>
<td>3.85</td>
<td>11.54</td>
<td>11.54</td>
<td>17.95</td>
<td>19.23</td>
<td>8.97</td>
<td>14.10</td>
<td>12.82</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Professional</th>
<th>Office Worker</th>
<th>Sales</th>
<th>Service</th>
<th>Student</th>
<th>Homemaker</th>
<th>Inoccupation</th>
<th>Others</th>
<th>Private Automobile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22</td>
<td>10</td>
<td>0</td>
<td>12</td>
<td>44</td>
<td>40</td>
<td>14</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>14.10</td>
<td>6.41</td>
<td>0.00</td>
<td>7.69</td>
<td>28.21</td>
<td>25.64</td>
<td>8.97</td>
<td>8.97</td>
<td>5.13</td>
</tr>
</tbody>
</table>

| Private Automobile    | 0                  | 1                |                  |                  |                  |                  |                 |                  | 8                  |
|                       | 8                  | 72               |                  |                  |                  |                  |                 |                  | 46.15              |
First, to analyze the relationship between the leisure cycling and the bicycle environment, the Tobit model was used. As the dependent variable, the frequency of leisure cycling per month was measured. And individual satisfaction for bicycle path, bicycle parking lot, and another bicycle environment were measured for the independent variable.

In Tobit model, if the prob>chi2 is less than 0.05, the model is not proper to explain. According to the result of the analysis, prob>chi2 was 0.05, and it means that this model is proper. It show that some of variables significantly affect the individual leisure cycling frequency. The individual satisfaction for bicycle path (blane_SAT), the individual satisfaction for bicycle parking lot (bpark_SAT), and the age of the respondents were significant. It means that who is younger and satisfied their bicycle path and bicycle parking lot use more bicycle for their leisure time.

However, another bicycle environment such as bicycle policy, bicycle lending system, and etc was not significant. This is because of that most of the respondents were not aware of the bicycle policy of Songpa Gu. Also, most of them do not have any experience to use free-bicycle, bicycle class, or public bicycle, and do not know about the local NGO’s campaigns.

<table>
<thead>
<tr>
<th>Tobit Model</th>
<th>Variable</th>
<th>Unstandardized Coefficients</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coef.</td>
<td>Std.Err.</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.537853</td>
<td>3.400746</td>
<td>1.04</td>
</tr>
<tr>
<td>blane_SAT***</td>
<td>5.49351</td>
<td>1.371479</td>
<td>4.01</td>
</tr>
<tr>
<td>betc_SAT</td>
<td>2.158422</td>
<td>1.615011</td>
<td>1.34</td>
</tr>
<tr>
<td>bpark_SAT*</td>
<td>2.014447</td>
<td>1.199317</td>
<td>1.68</td>
</tr>
<tr>
<td>age***</td>
<td>-6.734455</td>
<td>1.449413</td>
<td>-4.65</td>
</tr>
<tr>
<td>sex</td>
<td>-1.200094</td>
<td>3.604283</td>
<td>-0.33</td>
</tr>
</tbody>
</table>
a. Dependent Variable: use no
b. Left Censored Obs: 9
c. Uncensored: 69
d. Prob>chi2: 0.0505
e. Log likelihood: -116.43611

Pseudo R^2: 0.1062
*p=0.1. **p=0.05, ***p=0.01

Next, to analyze which environmental factors affect to individual satisfaction of bicycle path and bicycle parking lot, the OLS model was used.

<table>
<thead>
<tr>
<th>Variable</th>
<th>UnstandardizedCoefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.427</td>
<td>0.504</td>
</tr>
<tr>
<td>bdist_S***</td>
<td>0.590</td>
<td>0.134</td>
</tr>
<tr>
<td>bwidth_S</td>
<td>-0.190</td>
<td>0.165</td>
</tr>
<tr>
<td>bconn_S</td>
<td>0.108</td>
<td>0.220</td>
</tr>
<tr>
<td>bmaint_S</td>
<td>0.085</td>
<td>0.164</td>
</tr>
<tr>
<td>bseparate_S**</td>
<td>0.460</td>
<td>0.175</td>
</tr>
<tr>
<td>bdest-dist_S</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AGE</td>
<td>0.007</td>
<td>0.013</td>
</tr>
<tr>
<td>SEX</td>
<td>-0.488</td>
<td>0.323</td>
</tr>
</tbody>
</table>
According to the result of the OLS analysis, the adjusted $R^2$ for the model was 0.723 and 0.594, which means that these model had each 72.3% and 59.4% of explanatory power for the individual satisfaction on bicycle path and parking lot. First, in Model I, the distance from home and the separation with pedestrian are significant variables. It show that who living nearby bicycle path and having more bicycle-only path uses bicycle more for leisure. However, the width of bicycle path, the connectivity, and the maintenance are not significant. This is because of that most of bicycle path of Songpa Gu had same type and built in same period, so there is not much difference in the width and the connectivity. The distance from main destinations is not significant either, and this shows the similar result of existing researches which found that a departure is more important than a destination to choice a transportation.

In accordance with the model II, the distance of bicycle parking lot from home, the number of bicycle parking lot around home, and the maintenance are significant variables. This results shows that who having more bicycle parking lot near their home ride more bicycle in their leisure time. Also, the maintenance is important to individual satisfaction to bicycle parking lot, and it shows that the similar result showing bicycle loss is the most critical variable in bicycle use.
Conclusions

This study aims to find out which bicycle environment is important to leisure cycling and which factors of each bicycle infrastructure to the individual satisfaction. To collect the data of individual leisure cycling and satisfaction of bicycle infrastructure, the questionnaire survey on 200 residents of Songpa Gu is performed. And to analyze these data, the Tobit model and the OLS model were used in this study.

This study indicates that who has more satisfaction with their bicycle environment, ride more bicycle for leisure. This result shows the same instruction that to encourage bicycle use it is important to provide more bicycle infrastructure. Also, this study shows that which factors are more important to individual satisfaction of bicycle path and bicycle parking lot. It indicates that the distance from home to bicycle path and the separation with pedestrian are important. This means that it is need to be built more bike path in residential area, and it is need to be a bicycle-only path to encourage bicycle use. Also, it indicates that the distance from home to bicycle parking lot, the number of parking lot near home, and the maintenance are important. This means that it is need to be built more bicycle parking lot in residential area. Consequently, the bicycle infrastructure, especially bicycle path and bicycle parking lot, had been built by Songpa Gu encourages people's bicycle use. At the same time, this study shows that not only bicycle infrastructure's quantity but also its quality are important.

There are several limitations to this analysis. The only one case study might not be enough to generalize. The Songpa Gu has common characteristics of bicycle path and bicycle parking lot, so it is need to analyze another Gu at the same time.

References


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Digital assessment in high stakes physical education practical examinations

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Abstract

The Digital Forms of Assessment project is a three year ARC Linkage supported research project being conducted by Edith Cowan University's Centre for Schooling and Learning Technologies (CSaLT) in partnership with the Curriculum Council of Western Australia (WA). The project is investigating the potential for a digital format external examination to rigorously interrogate student learning as demonstrated in and through practical tasks. The digital assessment project is thus endeavouring to encompass and link practical and theoretical dimensions of the Physical Education Studies course. The project has been designed to inform the ongoing development of Physical Education Studies assessment in WA and contribute to national and international developments in assessment in Physical Education and other areas of education that incorporate a practical and/or performance dimension. It is intended that the project will provide guidelines for educational administrators that reflect successful practice in using information and communication technologies to support a standards-based approach to assessment. The findings of this study will therefore be of significant benefit to the partner institutions and the wider educational community, particularly in relation to the current national priority to achieve nationally consistent curricula with greater accountability to common standards in senior schooling. This provides a national imperative to develop rigorous, reliable, and viable forms of performance assessment. The Digital Forms of Assessment project thus aims to investigate authentic digital forms of assessment with high levels of reliability that are also manageable and capable of being scaled-up for state-wide (and potentially national) implementation in a cost effective manner. A new Physical Education Studies course was introduced in WA in 2007 as part of a state-wide reform of senior secondary schooling. The first practical examination for the Physical Education Studies course occurred in 2008, requiring students to attend an “Examination Centre” on a given day and to perform prescribed “Static”, “Dynamic” and “Conditioned” skill based drills and activities. Skills and responses were videoed and then marked at a later date. Under time constraints, the examination process did not: (i) question students about the intentions of their strategic response; (ii) require them to adapt responses to changing circumstances; and/or (iii) ask them to apply theoretical knowledge, concept and principles to a given situation or reflect on or evaluate their performance. These limitations of the 2008 examination highlight a critical need for research into the use of digital forms of performance assessment, featuring complex tasks and technology to ensure that assessment is feasible within the constraints of school contexts. This presentation will focus on the first year of the project. It will report on task design; marking criteria design; processes of image capture and the marking process and discuss how findings from the first year are informing development work for year 2.

Keywords: Digital assessment, Standards-based approach, Physical education
Introducing the digital assessment project

In 2007, the Australian Research Council supported a three year project proposed by a team of researchers at the Centre for Schooling and Learning Technologies at Edith Cowan University (ECU) in partnership with the Curriculum Council of Western Australia to investigate the feasibility of using digital representations of work for authentic and reliable performance assessment in senior secondary school courses. The project was developed in response to an identified need for enhanced assessment of performance elements of senior secondary courses in Western Australia (WA). It specifically sought to address the problem of providing authentic forms of assessment with high levels of reliability that would be capable of being scaled-up for state-wide implementation in a cost effective manner for the purposes of summative assessment in senior secondary courses. The project arose amidst a major reform of senior secondary schooling discussed below and from the viewpoint that established or traditional assessments fail to adequately assess performance elements of senior secondary courses, with the consequence that teaching and assessment will tend to focus on non-performance outcomes. While focused on a specific state context, the project has national and international relevance. The challenges that we are engaging with are by no means unique to WA. The processes being developed are directly relevant to calls for greater standardisation of assessment in senior secondary schooling across Australia (Nelson, 2005; Masters, 2006). Further, the project relates to international calls for greater alignment of course intentions and examination assessment in senior secondary physical education (Thorburn, 2007). It is specifically investigating the feasibility of using digital representation of student work on authentic performance tasks and of establishing online repositories of work for external summative assessment. It is also addressing the reliability of using paired comparison judgements method of marking to assess the performance components of senior secondary courses. The main research question is: How are digitally based representations of student work output on authentic tasks most effectively used to support highly reliable summative assessments of student performances for courses with a substantial practical component? Subsidiary questions are:

1. What are the benefits and constraints of each digitally based form to support the summative assessment of student practical performance in senior secondary courses in typical settings?

2. What is the feasibility of each digital form of assessment in terms of the four dimensions: technical, pedagogic, manageability, and functional?

3. Does the paired comparison judgements method deliver reliable results when applied to student practical performance across different courses?

The three year design has commenced with a ‘proof of concept’ phase (in 2008) and is progressing through to testing the potential for state-wide implementation. The research questions are being explored in relation to four new senior secondary courses, all of which feature a performance component: Applied Information Technology, Engineering Studies, Physical Education Studies and Italian. All of these courses were acknowledged by the researchers and the Curriculum Council of WA as ones in which it would be necessary to go beyond assessment formats traditionally used in external examination settings, if
Digital assessment in high stakes physical education practical examinations

Examinations were to effectively address learning deemed central to the courses. The project was therefore designed with the intention that various forms of digitally based representations of student work (film, photographic, scanned and audio-recording), would be utilised across the four course contexts as appropriate to courses and tasks, enabling performance in authentic tasks to be reliably assessed for the purposes of external examination. Digital representations of student work are uploaded to an online repository and accessed by markers to undertake standards-based and comparative pairs assessment. Analysis of the results of both methods of assessment will enable the reliability of procedures to be ascertained.

This paper focuses on the design of assessment tasks, digital representation of student work and the assessment of that representation in the Physical Education Studies course during the first year of the project. We necessarily begin by acknowledging longstanding issues and challenges relating to assessment in senior physical education nationally and internationally.

High Stakes: Examinations in senior secondary physical education

Thorburn (2007) has identified that providing accurate and authentic assessment that adequately responds to the conceptual underpinnings of contemporary senior physical education curriculum documents remains a key challenge for physical educators internationally. Attaining examination course status for physical education has repeatedly brought to a head the matters of to what extent and in what ways the skills, knowledge and understandings inherent in practical performance can feasibly and reliably be assessed. Demonstrating the feasibility, validity and reliability of practically based assessment that can occur in ways that align with requirements for external examinations is critical for the acceptance of senior secondary courses that accord practical and applied learning a central focus. If these aspects of learning are to retain their centrality in senior secondary physical education, we need to demonstrate the means for their assessment in the context of ‘high stakes’ examinations. From his work in Queensland, Hay (2006, p. 317) has proposed that:

…authentic assessment in PE should be based in movement and capture the cognitive and psychomotor processes involved in the competent performance of physical activities. Furthermore, assessment should redress the mind/body dualism propagated by traditional approaches to assessment, curriculum and pedagogies in PE, through tasks that acknowledge and bring to the fore the interrelatedness of knowledge, process (cognitive and motor), skills and the affective domain.

More recently Penney and Hay (2008) have stressed that providing all students with the best possible opportunities to pursue their interests in physical education in senior secondary contexts undoubtedly demands new approaches that embrace the needs of 21st century learners and the opportunities presented by 21st century technologies. This project sought to pursue those opportunities. It also acknowledged the powerful curriculum and pedagogical influence of examination assessment in senior secondary schooling and the fundamental bearing that such assessment has in relation to the social construction of competence and ability. In accord with Barnes, Clarke and Stephens’ (2000) stance, the project can be regarded as exploiting this influence of ‘high stakes’ examination assessment.
The new physical education course development in WA

In February 2007 a new senior secondary (typically years 11 and 12) Physical Education Studies was introduced in WA. This course was one of approximately 50 new courses that were developed in conjunction with the introduction of new Western Australian Certificate of Education (WACE). The introduction of the new WACE and related new course development signalled a radical change to the senior secondary schooling landscape in WA. Most notably, a long standing distinction between tertiary entrance and non-tertiary entrance subjects was effectively dissolved, with achievement in any of the new courses prospectively able to be acknowledged for tertiary entrance and in the award of the new WACE. The origins of the changes lay in a review of post-compulsory schooling and the subsequent publication of Our Youth Our Future. Post-Compulsory Education Review in 2002 (Curriculum Council of Western Australia, 2002). The major recommendations of this review were three fold:

- Align the Post Compulsory years (later to be renamed Senior Schooling) with Kindergarten to Year 10 which had, since 1997, and following the introduction of the WA Curriculum Framework, worked within an Outcomes Based Education (OBE) Framework;

- Broaden the range of tertiary entrance options and subjects available for students in schools;

- Rationalise the range of course structures (tertiary and non-tertiary entrance), assessment systems and subject selection criteria.

Physical Education Studies together with Outdoor Education (introduced 2008) and Health Studies (introduced 2009) were courses associated with the Health and Physical Education (HPE) Learning Area that would provide students with the first opportunity to study HPE contexts towards tertiary entrance. A Physical Education course reference group was established in 2003 to provide advice and guidance as the writing of the course progressed. Development, consultation, action research and accreditation, culminated in the first implementation of the course in 2007 (although schools were given the option of postponing implementation until 2008 if they felt they were not ready to start in 2007).

Structurally, the new courses adopted a standard framework, with the anticipation that a course would usually be studied over two years and comprise semesterised units, with students typically completing four units of study in a course. Units were developed to relate to three stages of learning (Stage 1, Stage 2, Stage 3) and with the anticipation that students may commence their studies at differing stages and similarly, progress to different stages dependent upon their prior learning and abilities. Two units (A and B) were developed for each stage, with additional units (C and D) subsequently developed for Stage 1 to ensure that diversity in students’ prior learning would be accommodated. In order for achievement in any course to be recognised for tertiary entrance, students were required to extend their studies to at least Stage 2 units and to undertake an external examination at the end of year 12. Thus, from 2007, for the first time in WA students could elect to study Physical Education Studies
with the intention that their achievement in the course would count towards tertiary entrance and they would be required to sit an external examination for the course in year 12.

The Physical Education Studies course was developed with the intention of ensuring that the course had ‘an application focus and presents the scope for recognition and reward of what we might term embodied and cognitive abilities’ (Penney, Evans & Taggart, 2005, p.7). It was hoped that the course would ‘celebrate the physical in physical education’ (ibid., p.7) and also actively promote the integration of conceptual and applied or performance-based learning in teaching and assessment. Course developers were thus committed to the external examination encompassing the performance dimension of physical education, while acknowledging that this commitment presented challenges in relation to assessment design, format and feasibility. This research project sought to assist in addressing these challenges and comparable issues faced in other courses with a significant performance component.

2008: Implementation of the Physical Education Studies Course and Practical Examination for year 12 students

2008 was the second year of implementation of the new course and as such, the first year in which the course would be offered to year 12 students. Those students studying stage 2 or stage 3 units would be required to undertake an external examination. Here we provide specific information about the course requirements relevant to our research. We also describe the practical examination implemented in 2008 and identify limitations and issues arising that our research is seeking to address.

The Physical Education Studies course (Curriculum Council of Western Australia, 2008) identifies four learning outcomes:

Outcome 1: Skills for physical activity: Students apply decision-making, movement, strategic and tactical skills to enhance personal participation in physical activity.

Outcome 2: Self-management and interpersonal skills for physical activity: Students apply self-management and interpersonal skills to enhance participation in physical activity

Outcome 3: Knowledge and understanding of movement and conditioning concepts for physical activity: Students understand movement and conditioning concepts that inform the enhancement of participation in physical activity.

Outcome 4: Knowledge and understanding of sport psychology concepts for physical activity: Students understand mental skills, motor learning, coaching and tactical concepts that inform the enhancement of participation in physical activity.

The course content is divided into three content areas: (i) movement, skills, strategies and tactics; (ii) physiological dimensions; and (iii) social dimensions. All units of study address each content area and are designed to progressively support achievement of all outcomes. The course encompasses three types of assessment:

Performance and reflection on performance in physical activity forms and settings, in the role of performer, coach and/or official;

Investigation: Investigation of own and others’ current participation in physical activity, participation potential, physical activity issues and social contexts. The findings may be communicated in any appropriate form e.g. written, oral, graphical, video, or various combinations of these; and

Response: Students apply their knowledge and skills when analysing and responding to a series of stimuli or prompts. Response to, analysis and evaluation of own or others’ (peer or professional) participation in physical activity. Student responses may be oral, written or multimedia. (Curriculum Council of Western Australia, 2008, p.9)

At the end of each Unit teachers are required to provide a school based assessment mark out of 100, which is then supported at Stages two and three by an external Examination score. In 2008 the examination comprised a written paper with a weighting of 70% and a practical examination weighted 30% of the total examination. School based assessment marks are scaled against the external examination score, highlighting the importance of the examination component.

The 2008 practical examination took place during the October school holidays in WA. Students from across the state were required to attend examination centres across Perth housed at various sporting facilities. The aim of the 2008 practical examination was to ultimately rank the performance of all candidates within a given sport. Students were asked to choose an examination context from the 14 listed sports or a sport nominated through the ‘unlisted’ option. Prior to the examination period a range of detailed support materials (CD’s and hard copy) were developed by an Examination panel (in conjunction with a team of highly credentialed ‘sports assessors’) and the Curriculum Council, which essentially listed and illustrated the drills and scenarios that students would be exposed to in the examination.

Section 1 of the examination addressed students’ technical competence in five of the skills described in the skills set in the support materials. Section 2 of the examination, conditioned performance, was used to assess students’ ability to make decisions and apply skills to resolve tactical problems encountered during competition, taking the form in the examination of scenarios were bounded by particular conditions or constraints. The framework for tactical problems was described in the support materials for each sport. The examination included a sufficient range of difficulty to discriminate between different levels of performance. This was akin to ‘easier’ and ‘harder’ examination ‘questions’ within two sections. Video footage of all performances was taken and marked at a later date using set criteria, developed by the sport assessors, and double marked by experienced participants in each sport.

The 2008 examination process did not question students about the intentions of their strategic response, require them to adapt responses to changing circumstances, ask them to apply theoretical knowledge, concepts and principles to a given situation, or reflect on or evaluate their performance. The examination was thus limited in relation to the course content, concepts and outcomes that it embraced. Time constraints, the challenges and
difficulties posed by WA’s geography, concerns relating to statistical moderation, undeveloped pedagogies around approaches to effectively connect theory and practice, and perceived technology deficiencies across the state were all factors contributing to the fact that this initial practical examination design brief essentially focused on the assessment of skilled performance. The preparation, organisation and conduct of the first, external practical examination in Physical Education Studies was achieved successfully, yet the process enacted in 2008 gave rise to critical questions in relation to:

- feasibility and sustainability: the examination costs in 2008 were purportedly very high;
- authenticity and credibility: whether this was a credible form of assessment for tertiary entrance without a rigorous interrogation of applied syllabus components;
- pedagogical implications: with the examination format potentially leading teachers to focus on skill development exclusively in preparation for the practical exam.

The knowledge gained from the 2008 first implementation of the practical examination suggests that the model and process is unsustainable and lacks the rigour to stand the test of time against “traditional” subjects. From that backdrop we report on the work in the first year of the digital assessment research project.

**Developing Digital Assessment in Physical Education Studies for External Examination purposes.**

In partnership with the Curriculum Council of WA and teachers involved in the project, we have pursued the potential for a digital format external examination to rigorously interrogate student learning as demonstrated in and through practical tasks, and to encompass and link practical and theoretical dimensions of the Physical Education Studies (PES) course. Due to limitations of space, our commentary here is confined to a brief description of the tasks designed and implemented in 2008 and marking processes undertaken. The conference presentation and subsequent papers will enable expansion upon the information provided in this paper.

The assessment task was designed for Year 11 students studying the PES Unit 2B utilising varied sport contexts: Rugby Union, Volleyball, Soccer and Swimming across three project schools. A key concern in task design was comparability in demands (and thus outcomes of assessment) across contexts. The task comprised four parts, each of which generated evidence of student achievement in digital format, as detailed in Table 1 below. The implementation of the assessment task required the use of video recording, relational database, computer workstation and Internet technologies. A multiple remote-controlled camera system was purchased through Vizcom for use in the project schools. This system allowed video feeds from individual cameras be displayed as quarter screen or full screen images and combined with the other camera feeds, enabling video evidence of performance to encompass two views. Figure 1 provides an example of the camera set-up. Video recordings were transferred from the digital recorder to a computer using an i-link (Firewire) connection and the MovieMaker software package. Each student’s recordings were extracted and saved as separate WMV files. The files were named using standard names (e.g.
video1.wmv, game1.wmv) and placed into folders named by each student’s ID on a server computer at ECU. In total 39 students undertook the assessment.

**Table 1** Digital Assessment Project Physical Education Studies Examination Task 2008

<table>
<thead>
<tr>
<th>Practical Examination Task components</th>
<th>Digital representation of student achievement</th>
</tr>
</thead>
</table>
| Part 1. Develop a response to a tactical problem in their sport  
*This session was conducted with each student using a computer to type responses to questions about the problem set for their sport. Students were situated in a computer-lab, classroom or library context in examination conditions. They opened a file on a supplied USB, entered their ID code and Sport and waited for the instruction to begin. They were given up to 30 minutes to respond to the questions.* | Students’ typed responses to the questions set. |
| Part 2. Performance of skills in their sport  
*Four skills had been identified for each sport, relevant to the tactical problem set. Drills were specified for performance of each skill. Each student completed the drill for each of the skills three times. All performances were video recorded.* | Video files of student performance of each skill. |
| Part 3. Application of skills in a game/competitive performance context  
*This session provided each student with two opportunities to perform their response to (i) the tactical problem addressed in part 1 of the examination; and (ii) an adapted tactical problem with changed performance conditions. Each response was video recorded.* | Video files of student responses to tactical problems. |
| Part 4. Student reflection  
*This session was conducted in the same setting as Part 1. Each student used a computer to view videos of their performances from the previous two sessions and respond to reflective and evaluative questions about their performance and responses to the challenges set. Students opened a file from a supplied USB device, entered their ID code and Sport and waited for the instruction to begin. The links provided via the USB enabled them to access their own video files. They were given up to 50 minutes to respond to the questions.* | Students’ typed responses to the questions set. |
Standards-based rubrics were developed for each part of the examination task with the Physical Education Studies course document as the reference point in development (see Appendix A). Assessors were able to access the rubric and all accompanying student evidence on-line, enabling them to systematically mark each student’s performance in the full exam. Each student’s work was assessed by two assessors. After standards-based assessment was completed, comparative pairs assessment was undertaken. This assessment process requires a direct comparison of two students’ performance. Assessors are required to decide which of the two students being compared has performed better in relation to each of the set criteria. Five assessors each made 149 comparisons using a digital marking tool. All five were general Physical Education experts, two being involved in the standards-referenced marking. One holistic and three specific assessment criteria were developed for the comparative pairs marking from the criteria previously developed for the task as detailed in Table 2.

**Table 2** Comparative Pairs Marking Criteria

| Holistic Criteria: Judgement about performance addresses students’ ability to make informed decisions in, and about, performance situations and to effectively execute responses to those situations. Execution of responses is acknowledged as encompassing skill execution and implementation of strategies and tactics. |
| Specific Criteria 1. Knowledge and understanding of strategies and tactics |
| This criterion addresses conceptual understanding of game/performance situations, the problems that specific situations pose and viable solutions that may be enacted in responding to situations. Evidence relating to this criterion will be drawn primarily but not exclusively from the written component of the examination. Video extracts from game play/competitive performance situations may also provide evidence of knowledge and understanding of strategies and tactics. |
| Specific Criteria 2. Execution of movement skills |
This criterion focuses specifically on performance of skills. Execution of the skill is deemed to encompass the essential movement that constitutes preparation for and following through from a point deemed that of enactment of a skill. Evidence relating to this criterion will be drawn from the individual skill performance extracts and may also be drawn from game play/competitive performance video extracts.

Specific Criteria 3. Application of strategies and tactics

This criterion addressed the application of strategies and tactics as demonstrated by students in a live performance context. Evidence relating to this criterion was drawn from the game play/competitive performance video extracts.

Conclusion

The first year of the digital assessment project has involved us designing and implementing assessment tasks and associated processes for recording of evidence and marking. The task materials, student responses and assessment data are all being utilised to refine tasks, marking rubrics and implementation arrangements for year 2 of the project. Analysis of data from the assessments undertaken in Year 1 will be reported in subsequent papers. Year 2 of the project will involve implementation of modified tasks, utilising additional technological tools, in an expanded range of sport contexts and new school contexts. The project is providing an invaluable opportunity for the potential transformation of assessment practices in senior physical education to be explored. We welcome the opportunity that the ACHPER national conference presents for dissemination of our initial work.

References


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APPENDIX A: Criteria for the Digital Assessment Project Physical Education Studies Examination Task 2008

Note: These criteria need to be interpreted for different sport contexts in terms of the specific tactical problems and associated skills featuring in the examination. Criteria are detailed on the left. The right-hand column details descriptors and associated marks to be allocated.

<table>
<thead>
<tr>
<th>Response Development</th>
<th>(a) Development of a strategic response to a specified tactical problem, in a specified context. (20%)</th>
</tr>
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<tbody>
<tr>
<td>Understands the tactical concepts of games and activities</td>
<td>10: Demonstrates creativity and sophisticated understanding of tactical situations in analysing problems and devising solutions.</td>
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<tr>
<td></td>
<td>8: Demonstrates consistently sound and in-depth understanding of tactical situations in analysing problems and devising solutions.</td>
</tr>
<tr>
<td></td>
<td>6: Demonstrates consistently sound understanding of tactical situations in analysing problems and devising solutions.</td>
</tr>
<tr>
<td></td>
<td>4: Demonstrates sound understanding of most aspects of tactical situations in analysing problems and devising solutions.</td>
</tr>
<tr>
<td></td>
<td>2: Demonstrates basic understanding of fundamental aspects of tactical situations in analysing problems and devising solutions.</td>
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</table>

Makes informed decisions in undertaking selected roles | 10: Makes decisions in a complex physical activity situation utilising a critical perspective and considering a comprehensive range of alternatives and consequences for themselves and others. |
| | 8: Makes sound objective decisions in a complex physical activity situation, taking into consideration multiple and diverse factors, and considering a broad range of alternatives and consequences for themselves and others. |
| | 6: Applies decision-making skills to make appropriate decisions in a complex physical activity situation, taking into consideration key factors and considering a broad range of alternatives and consequences for themselves and others. |
| | 4: Applies decision-making skills effectively to respond to a complex physical activity situation, considering a range of alternatives and consequences for themselves and others. |
| | 2: Applies decision-making skills with some effectiveness to respond to a complex physical activity situation, considering a range of alternatives and consequences for themselves and others. |
### Key Skills

<table>
<thead>
<tr>
<th>Execution (x FOUR SKILLS)</th>
<th>(b) Execution of FOUR selected key skills and associated patterns of movement in controlled (passive/practice) conditions. (20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5:</td>
<td>Demonstrates consistent technical proficiency in skill execution.</td>
</tr>
<tr>
<td>2:</td>
<td>Demonstrates some elements and/or instances of technical proficiency in skill execution.</td>
</tr>
<tr>
<td>1:</td>
<td>Demonstrates effective basic skill execution.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associated patterns of movement – preparation for and completion of skill (x FOUR SKILLS)</th>
<th>2.5: Demonstrates consistent technical proficiency in preparation for and completion of skill.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2: Demonstrates some elements and/or instances of technical proficiency in preparation for and completion of skill.</td>
</tr>
<tr>
<td></td>
<td>1: Demonstrates effective preparation for and completion of skill.</td>
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</tbody>
</table>

### Strategic Response

<table>
<thead>
<tr>
<th>Make on-the-spot decisions to apply movement patterns in solving tactical problems</th>
<th>(c) Execution of the strategic response in a ‘live’ performance context (modified game situation) (20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:</td>
<td>Anticipates and chooses between the multiple movement demands of complex patterns of play.</td>
</tr>
<tr>
<td>4:</td>
<td>Anticipates patterns of play or activity events and apply appropriate actions in response.</td>
</tr>
<tr>
<td>3:</td>
<td>Recognises changes to patterns of play or activity events and adapt actions in response.</td>
</tr>
<tr>
<td>2:</td>
<td>Recognises fundamental patterns of play or activity events and apply a range of actions in response.</td>
</tr>
<tr>
<td>1:</td>
<td>Recognises changes in play such as opponents or activity events and apply actions in response.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Execution - perform movement skills to enhance personal performance</th>
<th>5: Demonstrates consistent technical proficiency in skill execution.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>4: Demonstrates some elements of technical proficiency in skill execution invariably evident.</td>
</tr>
<tr>
<td></td>
<td>3: Demonstrates effective basic skill execution with some instances of technical efficiency.</td>
</tr>
<tr>
<td></td>
<td>2: Demonstrates consistently effective basic skill execution.</td>
</tr>
<tr>
<td></td>
<td>1: Demonstrates some instances of effective basic skill execution.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Associated patterns of movement – preparation for and completion of skills</td>
<td>5: Demonstrates consistent selection of appropriate software and hardware for type of information solution.</td>
</tr>
<tr>
<td></td>
<td>4: Demonstrates some elements of technical proficiency in preparation for and completion of skills invariably evident.</td>
</tr>
<tr>
<td></td>
<td>3: Demonstrates effective preparation for and completion of skills with some instances of technical efficiency.</td>
</tr>
<tr>
<td></td>
<td>2: Demonstrates consistently effective preparation for and completion of skills.</td>
</tr>
<tr>
<td></td>
<td>1: Demonstrates some instances of effective preparation for and completion of skills.</td>
</tr>
<tr>
<td>Implement strategies and tactics to enhance personal performance</td>
<td>5: Applies advanced technically refined strategies and tactics with precision and consistency.</td>
</tr>
<tr>
<td></td>
<td>4: Applies an extensive range of technically refined strategies and tactics with precision.</td>
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<tr>
<td></td>
<td>3: Applies a broad range of strategies and tactics.</td>
</tr>
<tr>
<td></td>
<td>2: Applies a range of activity-specific strategies and tactics.</td>
</tr>
<tr>
<td></td>
<td>1: Applies a limited range of strategies and tactics.</td>
</tr>
<tr>
<td>(d) Adaptation/modification of the strategic response and associated skills / techniques in response to changes in the tactical problem/conditions (20%)</td>
<td>5: Anticipates and chooses between the multiple movement demands of complex patterns of play.</td>
</tr>
<tr>
<td></td>
<td>4: Anticipates patterns of play or activity events and apply appropriate actions in response.</td>
</tr>
<tr>
<td></td>
<td>3: Recognises changes to patterns of play or activity events and adapt actions in response.</td>
</tr>
<tr>
<td></td>
<td>2: Recognises fundamental patterns of play or activity events and apply a range of actions in response.</td>
</tr>
<tr>
<td></td>
<td>1: Recognises changes in play such as opponents or activity events and apply actions in response.</td>
</tr>
<tr>
<td>Execution - perform movement skills to enhance personal performance</td>
<td>5: Demonstrates consistent technical proficiency in skill execution.</td>
</tr>
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<td>Implement strategies and tactics to enhance personal performance</td>
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<td>1: Applies a limited range of strategies and tactics.</td>
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<td>(e) Taking on the role of the reflective performer (20%)</td>
<td>10: Demonstrates creativity and sophisticated understanding of tactical situations in analysing problems and devising solutions.</td>
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<td>8: Demonstrates consistently sound and in-depth understanding of tactical situations in analysing problems and devising solutions.</td>
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<td>Make informed decisions in undertaking selected roles.</td>
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<td>4: Demonstrates sound understanding of most aspects of tactical situations in analysing problems and devising solutions.</td>
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<td>10: Makes decisions in a complex physical activity situation utilising a critical perspective and considering a comprehensive range of alternatives and consequences for themselves and others.</td>
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<td>8: Makes sound objective decisions in a complex physical activity situation, taking into consideration multiple and diverse factors, and considering a broad range of alternatives and consequences for themselves and others.</td>
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<td>6: Applies decision-making skills to make appropriate decisions in a complex physical activity situation, taking into consideration key factors and considering a broad range of alternatives and consequences for themselves and others.</td>
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<td>4: Applies decision-making skills effectively to respond to a complex physical activity situation, considering a range of alternatives and consequences for themselves and others.</td>
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The impact of personality type on physical activity and healthy eating: Using the Enneagram

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Abstract

Why do some people make healthy choices, and others don’t? The study of personality tells us there are enormous differences between individuals, including what motivates people in everything they do. This paper explores whether the answers to why some people exercise regularly and eat healthily, while others don’t, could be hidden in their core motivational drivers. This paper describes a study of 70 Health and Physical Education teachers at three ACHPER Conferences in 2007 and 2008. The teachers each identified their personality type and, in groups with others of the same type, were asked “What motivates you to be physically active and eat healthily?” There were significant similarities in reported motivators between people of each type, together with marked differences between people of different types. Implications for applying these findings to school students, and even to the wider population, are explored. With a greater knowledge of motivation, we might become more successful in encouraging a wider proportion of the school and general population to engage in physical activity and eat healthily.

Keywords: Enneagram, Motivation, Personality, Change

We all think and learn differently...

Getting the best from kids in schools is understanding the way they think...

It’s not just that their talents aren’t discovered. They are actually driven away from those talents...

They should have the opportunity to do other things, not as a default, but as an entitlement...

We really need to rethink some of the basic terms: What is it that drives people to learn and achieve in the first place?...

There’s not a kid in Australia who gets out of bed wondering what they can do to raise the standards...

It’s about them, and energizing them...

You can’t achieve improvement for everybody with a standard template.
Sir Ken Robinson
Leading thinker on education, creativity and innovation,
Chair, Commission on education strategy for the future, for the Blair Government,
Knighted for services to education and the arts,
Author of ‘The Element’, stories of successful people whose talents were unrecognized at school.

Quotes from ABC 7.30 Report, 16 June, 2009

Introduction and Rationale for the Study

We have been told that, for the first time in history, the life expectancy of the younger generation could be shorter than that of their parents. Physical health (activity and nutrition) plays a large part in this prediction. Our community needs to find better ways to encourage everyone to be more physically active and to eat healthily if we wish to share long, healthy lives.

But why do some people make healthy choices, and others don’t? The answers could be hidden in the various ways we are motivated. The study of personality tells us there are enormous differences between individuals, and what motivates each of us in everything we do. With a greater knowledge of motivation, we might become more successful in encouraging a wider proportion of the population to engage in physical activity and eat healthily.

The Enneagram is an elegant way of analysing personality. It describes nine core motivational drivers. Therefore, a study of the nine Enneagram types, aimed at assessing if different types are motivated by different drivers, seemed an intriguing and potentially useful study.

This paper briefly describes (1) where the Enneagram model of personality comes from, (2) the study, (3) short descriptions of each Enneagram type, and then (4) how different Enneagram types report they are motivated to be physically active and eat healthily. Finally, there is a discussion of how the results might be applied.

Background to the Enneagram

No one is exactly sure where the Enneagram (pronounced any-a-gram) originated. It is a way of classifying people that dates back at least two thousand years. But it is clear that, in those ancient societies where there was an interest in understanding what makes people “tick”, communities were coming to a similar conclusion that there are 9 core types of
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people. The theory suggests that each of these personality types see life through a different “lens”, based on a combination of DNA and upbringing. Peter Senge (1990) observes that the mental model each of us possesses determines not only how we make sense of the world, but also how we take action.

Enneagram theory suggests that we are all born spontaneous, inquisitive, vulnerable, giving our feelings full expression, and trying to work things out. But our early carers had the task of socializing us. Young children want to have their needs met, and obtain love. Children are therefore influenced to see the world, and behave in certain ways, by their early carers. These early carers had already developed their type with well established “mental models” and behaviours of their own. So they rewarded or over-valued certain behaviours and punished or ignored other behaviours. As a result of our perceptions during this socialization process, we develop a “lens” through which we view the world. We hoped, as children, that this would be the key to obtaining love. We become proficient in operating in particular ways, exquisitely tuning into certain data, and ignoring other information. As adults, our actions are still generated mostly from the view we developed of the world in those early days. As the Jesuits say, “Show me the child until he is seven, and I will show you the man.”

The Enneagram model suggests that, as adults, we favour one of the nine personality types. This brings with it specific strengths and talents, as well as blind-spots and weaknesses. Furthermore, each of the 9 Enneagram types is driven by a specific motivator that fuels our enthusiasm (or otherwise) for everything we do. Descriptions of each of the 9 Enneagram types can be seen in the APPENDIX at the end of this paper. The bibliography provides a wide range of Enneagram books that expound on the theory of this motivational model.

The Study

70 people contributed to the following results. Mostly, participants were H&PE teachers attending three professional conferences conducted by ACHPER(QLD). One conference was conducted in Brisbane in August, 2007. The other two conferences were held in Townsville in December, 2007 and December 2008. In addition, there were a few additional ACHPER(QLD) volunteers and committee members who attended sessions and contributed to the study. There were similar numbers of participants represented in each of 8 Type groups represented at the two conferences. However, there were no Type 4s represented in either group.

In a 1½ hour presentation, participants were given an overview of the Enneagram types, and were asked to self-select themselves into groups with others of their type. They were asked several questions, one of which was, “What would/does motivate someone of your type to engage in physical activity and eat healthily?”

The following is a very short summary of each of the Enneagram types, together with conference delegates’ responses to the above question.
**Type 1s (often called The Perfectionist or Reformer)**

Type 1s search for what is right, and what is wrong, then work with great dedication to fix errors. They bring the highest standards and ethics, but can be inflexible and resentful when others don’t try as hard “to be good” as they do.

Typical Presentation: Cool, tense, rational, measured, unflappable.

Strengths: Contribute effort and correct action, integrity, fairness, clarity with guidelines and standards, concern for excellence, drives for continuous improvement, industry, diligence, idealism, high standards, ethics, practicality, self-reliance, responsible, conscientious.

One’s are particularly good at bringing high standards, dedication and hard work to the team. They can lead through integrity and reason, when they are not hindered by perfectionism and resentment.

The Type 1s in the conference group said the approach that would work for them to be physically active and eat healthily would be to:

- Appeal to the Type 1s sense of responsibility to self/family by being fit and healthy.
- Remind them not to be lazy.
- Remind them that getting fit is not “just playing” or “wasting time”. It is important.
- Ensure health/activity targets are within their control, so they can operate “according to a plan”. Then their relentless self-criticism would be managed better.
- Provide proper information about the benefits, eg activity will offer “stress relief” and “balanced life styles”, as they know they “should” be aiming for these.

**Type 2s (often called The Helper or Giver)**

Type 2s want to be needed by others. They make themselves indispensable with their generosity and helpfulness, but can interfere and avoid tough decisions, becoming resentful when not appreciated “for all I have done for you”.

Typical Presentation: Contactful, reaching out, helpful, other focused.

Strengths: Sensitive to feelings, empathetic, willing to give what’s needed, helpful, warm, generous, caring, supporting others’ development, mentoring leadership (with “with” them, not “for me”), continually explaining, energetic, exuberant, alive, expressive, generating good feelings, networking.
Two’s bring an intense desire to connect and assist others in the team. They can shine with generosity, or struggle with people-pleasing and possessiveness.

The Type 2s in the conference group suggested that others could:

- Emphasize how the Type 2s will provide a good role model for others if they make healthy choices for themselves.
- Remind them how good they will look when they are fit and healthy. As “image” types, they said this would appeal to their vanity.
- Encourage activities that can be done in groups where they can talk about things that interest them (specially relationships).
- Point out that they will achieve more for others when they are fit and healthy.

*Type 3s (often called The Achiever or Performer)*

Type 3s strive to achieve goals and succeed in everything they do. They surmount all obstacles that get in the way, but can be inappropriately competitive and image conscious, “putting a spin” even on their failures.

Typical Presentation: Great image, alert, energetic, looking successful.

Strengths: Industrious, efficient, practical, competent, focused, energetic, confident leadership, thrives in competition, sees possibilities, “tasky”, finds solutions, active “go getter”, often high profile, “juggles many balls at once”, enthusiastic, persuasive, encouraging, provides what’s needed.

Three’s bring a driving desire to perform and achieve outcomes. They can become inspiring examples of excellence and authenticity, or blindly pursue success and status.

The Type 3s in the conference group suggested:

- Providing a pedometer so others can see them achieving fitness. “We like displaying gadgets.”
- Setting and seeing themselves achieving specific goals, as this provides internal competition.
- Recognized in public when their goals were met.
- Involved in competitions where they can win.
- Reminded about the positives of getting fit, specially emphasizing how good they will look when their body is fit and healthy.
- Reminded that this will assist them maintain focus and/or schedules.
Type 4 (also called The Romantic or Connoisseur)

Type 4s search for a life or work that is unique and different. They bring flair, innovation, and deep feelings when not consumed by dissatisfaction with the “ordinariness” of life.

Typical Presentation: Flair, dramatic, idiosyncratic and intense.

Strengths: Great creative flair, constant searching for exceptional quality, ability to realize passionately held ideals, appreciative of the unique, idealistic, sensitive, attuned to feelings, deep compassion for others, empathetic (specially with suffering), individualistic, intense, romantic.

Four’s search for an ideal, usually results in great creativity, innovation and flair. They can model the benefits of intuition, or be held back by moodiness and self-consciousness.

No participants of this type attended either of these two sessions. In the writer’s experience, Type 4s are usually attracted to sessions on this topic (as this type is deeply emotional and is inherently intrigued by delving into intra-personal issues). We can only extrapolate the reason why they did not attend the sessions run at these conferences. Maybe Type 4s are less attracted to the H&PE profession, and therefore were absent from these conferences altogether? If so, does this have implications for the profession and the students they aim to serve? Does it mean that Type 4 students rarely have role models in their H&PE teachers?

Type 5s (also known as The Observer, Researcher or Sage)

Type 5s seek objective knowledge, rationality and bring clear thinking to problem solving. They are the “minimalists”, conserving time, energy and resources. They feel drained by people’s needs and emotions.

Typical Presentation: Rational, cool and aloof, withdrawn, withholding, analysis.

Strengths: Scholarly, “sage”, observant, knowing, thoughtful, rational, quiet, comprehensive analysis, dispassionate (calm in a crisis), respectful of others’ boundaries and independence, excellent listeners, keeper of confidences, dependable, sorts out what’s required vs what’s wasted energy, minimalist, works behind the scene, self-contained, appreciative of simplicity, ascetic.

Not surprisingly, another term for Five’s is The Sage. They can demonstrate visionary intellect and inventiveness, or become increasingly eccentric and isolated.

Type 5s in the conference group wanted others to:

- List the pros and cons of physical activity and healthy eating.
- Give empirical data, statistics, research studies: proof of its value.
The impact of personality type on physical activity and healthy eating: using the enneagram

- Assist them make a rational decision, eg emphasise how physical activity will prolong their life and minimize illness etc.
- Remind them that a healthy body will keep them self-sufficient longer in life.
- Refrain from using emotive or spurious arguments.

*Type 6s (also called The Loyal Sceptic or Trouble Shooter)*

Type 6s want certainty and security, constantly scanning for potential danger, excelling at “worst case scenarios”, and testing others. They can be loyal servants as the team provides “safety in numbers”.

Strengths: Dedication, devotion & loyalty to others, dutiful, questioning mind, “ferreting out” hidden agendas, insightful forethought and risk minimization (specially re potential hazards and possible outcomes to decisions), good in crises, perseverance through difficulties, warm, protective, trusting as faith develops, sensitive, steadfast, vigilant, inject humour.

Sixes can exemplify courage and commitment, or struggle with anxiety and rebelliousness.

Type 6s in the conference group said they:
- Prefer individual (one to one) encouragement from someone they trust.
- Are motivated by the risks associated with NOT being active and healthy
- Like to be introduced to the activity and made to feel safe prior to commencing something new.
- Like someone to partner them in on-going activities.
- Enjoy the challenge, testing they strength and skill, when they feel ready to start.

*Type 7s (also called The Optimist, Epicure or Planner)*

Type 7s intend to “taste” everything that life has to offer. Multi-tasking, with agile minds, they are spontaneous and “charm to disarm”. They bring a multitude of options but can avoid commitment, pain and limits.

Typical Presentation: Multi-tasking, agile optimistic minds.

Strengths: High energy, playful, charming, loving of life, enjoyable, inventive ideas and plans, interconnecting diverse areas of knowledge, imaginative, egalitarian flair to leadership, minimally impacted by painful experiences, open to a variety of possibilities and alternatives, fascinated and fascinating.
Seven’s are intensely fast thinking, and bring endless possibilities to the team. They can become highly accomplished and spirited, or be waylaid by impulsiveness and impatience.

Type 7s in the conference group suggested others:

- Made sure all the types are involved, so there is variety in the exercising group.
- Offer maximum involvement so they don’t become distracted.
- Offer a wide variety of light-hearted options: “It has to be a REALLY interesting activity if deep thinking or knowledge is required! Otherwise, keep it light!”
- Don’t force them to ‘be perfect’ in just one sport.
- Encourage them with the positive benefits of being active (and remind them how bad it feels when they are unwell, and their life style is limited by illness.)
- Make sure the activity is fun.
- Don’t lock them in!

*Type 8s (also called The Boss, Confronter, or Protector)*

Type 8s take control. They are directive, decisive, and self-confident doers. They usually have a huge “lust for life” and can be intimidating. For 8s, there is usually only one way of doing things: their way!

Typical Presentation: Extroverted, self-assurance, “fills the room”, doer.

Strengths: Straightforward, direct, wants feedback, wants the truth, generous, strong, demands power, takes control, gives direction, zestful and forceful energy, passion for seeking justice and confronting injustice, protective of others, exciting, intense, determined, courageous, persistent, friendly, truthful, trusting, fair, clear.

Eights will do whatever is needed to complete the task, “or die in the attempt”! They can become powerful magnanimous leaders, or control and intimidate.

Type 8s in the conference group said:

- They need someone to ensure they follow through, as they tend to be “all or nothing” types of people with most things, including activity and healthy eating.
- They need a schedule for activity, or they get totally caught up in other things.
The impact of personality type on physical activity and healthy eating: using the enneagram

- Set up teams, as they enjoy the social element. They don’t like being left out.
- In team activities, let them be in control, eg the captain. 8s can be very competitive (“killing the enemy”), yet very protective of their own team.
- Encourage them to do something different ‘because they can’!
- If they aren’t fit, they like doing physical activities in private (as physical weakness makes them feel vulnerable). A personal trainer, or home gym can work very well.

Type 9s (sometimes called The Peacemaker or Mediator)

Type 9s are agreeable team players, striving for consensus and merging with others. They seek “comfort” and a peaceful environment. This can result in a lack of decision making or confronting problems.

Typical Presentation: Congenial team player, blending in, the “bridesmaid”.

Strengths: Attentive to others, keeping balance through adaptability, building harmony with others by resolving conflicts, compromising / consensus driven, win / win, empathetic, adaptive, accepting, agreeable, supportive, participative, calming, receptive, co-operative, steadiness, team builder, facilitator, coach, uses attributes of all types.

Nine’s are wonderful team players. They are very good at seeing all sides to any issue. They are happy to share the credit, and usually excel in smoothing out any tensions between team members. They have been described as “the glue of the universe”! They can bring people together and heal conflicts, or be held back by passivity and stubbornness.

Type 9s in the conference group suggested that others:

- Aim for “unity through a common goal”.
- Understand that 9s are adaptable, enjoying team activities, lunch time walks with peers etc.
- Provide role models/mentors/buddies who share their health and physical activity goals.
- Listen to their suggestions for activity ideas … but also follow up to ensure implementation.
- Encourage them to schedule a regular time for physical activity.
- Remind them of the good feelings of success, and the long term consequences of not being fit and healthy.
- Offer rewards and recognition when their goals are met!
Discussion

Cautions

As stated previously, these lists were prepared by specific type groups. These were the actions that came to participants’ minds when asked: “What would/does motivate someone of your type to engage in physical activity and eat healthily?”

The actions suggested by each type group may not be a complete list for that type.

There may also be some overlaps eg some approaches that motivate one type, may also motivate another type.

Some people of each type may not find each suggestion matches their motivational drivers perfectly.

However, as an experienced worker with the Enneagram, I am surprised how suggested actions by each type group are consistent with the Enneagram theory of motivation. In some ways, there are no surprises when one is familiar with the Enneagram. Yet I could not have predicted these specific suggestions.

Potential uses of the results

Each type group offered very different approaches to motivating their particular type to be physically active and eat healthily. The range of motivators was so varied, that it is not surprising that practitioners have not been able to engage all their clients/students in the past with one approach.

The type groups’ suggestions could be useful when encouraging people of that type to be physically active and eat healthily.

Knowledge of personality type, matched with specific actions that target specific personalities, could result in a wider range of options being available to practitioners when trying to motivate clients/students.

Rather than guessing or hoping to find the right intervention immediately, this information might shorten the search for the best approach to motivate individuals and groups.

Other comments

H&PE teachers cannot be expected to be able to identify the personality type of each and every one of their students. However, if there are some students who are particularly difficult to engage, consideration of what might motivate that particular student could be useful when designing classes and interventions.

In the wider community, this information might be valuable to doctors, personal trainers, and other health professionals who are trying to engage people in regular physical activity, or encouraging people to eat healthily.
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Where to from here?

It was disappointing that we had no Type Fours. This type group could be sought out in future studies.

Other suggestions for motivation might be uncovered with a greater number of participants. However, in a time of great interest in encouraging people to be physically active and eating healthily, the results are sufficiently interesting to suggest follow-up studies with a larger group of people from a wider range of backgrounds.

Summary

The Enneagram, and knowledge of what motivates people to be physically active and eat healthily, may provide important clues towards a more focussed and disciplined approach than is available at present. Professionals’ efforts could become more effective, and clients might enjoy healthier lifestyles with further exploration of personality type and what motivates people.

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Upper and lower extremity processing in boys with attention deficit hyperactivity disorder

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Abstract

The inefficient motor control displayed by children with attention deficit hyperactivity disorder (ADHD) warrants further investigation. Understanding of perceptual-motor ability should precede the design of appropriate learning activities for children (Kephart, 1971). Assessing movement preparation to directional stimuli may reveal certain developmental motor milestones in children with and without atypical motor development (Ayres, 1972; Surburg & Eason, 1999). Movements that cross the midline of the body require focused attention, cerebral processing, and muscular coordination. A deficiency in midline crossing has been noted in the lower extremity movements of children with ADHD (Pedersen & Surburg, 2008; Pedersen, Heath, & Surburg, 2007; Pedersen & Surburg, 2005; Pedersen, Surburg, Heath, & Koceja, 2004). Preliminary data concerning the psychomotor performance of children with ADHD have revealed that lower extremity movements may be more sensitive to deficiencies in central nervous system function than upper extremity tasks (Li, McColgin, & Van Oteghen, 1998). However, to date there have been no direct comparisons of upper and lower extremity reaching movements in children with and without ADHD. The purpose of the present study is to assess the development of cross lateral integration, or the ability to prepare contralateral movements that cross the midline of the body as readily as ipsilateral movements that remain on the same side of the body, in both the upper and lower extremities of children with and without ADHD, between the ages of seven and nine. The findings from a study like this have the potential to improve the quality of physical education taught to children with developmental difficulties.

Keywords: Cross lateral integration, Reaction time, ADHD

Introduction

It is apparent from the collective motor control literature on children with attention deficit hyperactivity disorder (ADHD) that these children demonstrate movement inefficiencies. Whether these deficiencies are due to efferent functioning (e.g., hyperactivity) or afferent pathways (e.g., inattention) remains unclear. An abundance of this literature has dealt with the cognitive functioning of children with this disorder (Engelhardt, Nigg, Carr & Ferreira, 2008). Comparatively, limited studies have dealt with their motor performance (Harvey & Reid, 2003), which is a pragmatic concern for physical educators hoping to use research literature to help guide their best practices for teaching appropriate physical activity to children who experience ADHD symptoms.
It is widely acknowledged that physical educators should possess an understanding of the perceptual-motor ability of their students (Kephart, 1971; Wang & Griffin, 1998), and furthermore, that as children mature, they should become more adept in planning complex motor skills (Gallahue & Ozmun, 2006). An example of a developmental complex motor skill is the ability to attain cross lateral integration (CLI), or the ability to plan reaching movements to both sides of the body with equal efficiency (Ayres, 1972; Cermack, Quintero & Cohen, 1980; Pedersen & Surburg, 2008; Schofield, 1976; Stilwell, 1987, 1981; Surburg & Eason, 1999). Movements that cross the midline of the body require focused attention, cerebral processing, and muscular coordination. In the current study this developmental ability was assessed, within the information processing paradigm, using a choice response time protocol to separate movement preparation (reaction time: RT) from movement execution (movement time: MT). Temporal delays in midline crossing reaching movements have been noted in the lower extremities of boys with ADHD (Pedersen, Heath & Surburg, 2007; Pedersen & Surburg, 2005; Pedersen & Surburg, 2008; Pedersen, Surburg, Heath & Koceja, 2004). Past research has suggested that lower extremity movements may be more sensitive to deficiencies in central nervous system function than upper extremity actions due to an unavoidable laterality preference (Li, McColgin & Van Oteghen, 1998; Peters, 1990; 1988). Although this variable may confound results of certain temporal measurements, many studies have utilized upper extremity simple RT (Beyer, 1999; Cohen & Douglas, 1972; Gordon & Kantor, 1979; Hefley & Gorman, 1986; Pitcher, Piek & Barrett, 2002) and choice RT (Sheppard, Bradshaw, Georgiou, Bradshaw & Lee, 2000; Vickers, Rodrigues & Brown, 2002;) to explore why children with ADHD have difficulty processing movement. Few studies have investigated lower extremity reaching movement preparation, and to the knowledge of the investigators no direct comparisons of upper and lower extremity reaching movements in children with ADHD have been reported.

The current study utilized a choice response time protocol to assess the integrity of perceptual-motor processing ability of children with and without ADHD. Operationally defined, children able to prepare contralateral movements that cross the midline of the body as quickly as ipsilateral movements to the same side of the body with their arms and legs, as indicated by RT scores, have successfully achieved CLI. Consequently, children who have significantly slower contralateral RTs compared to ipsilateral RTs are considered to still exhibit midline crossing inhibition (MCI). The purpose of this investigation was to assess the development of CLI, or the presence of MCI, in both the upper and lower extremities of boys with and without ADHD between the ages of seven and nine. The hypotheses for this investigation were that boys with ADHD will experience MCI in the lower extremities but not the upper extremities, whereas the peer group will have achieved CLI with both the upper and lower extremities.

**Method**

**Participants**

Ten boys with ADHD (M age = 8.43 years + 8 months) and 10 control participants matched on age (+/- two months) were randomly selected from a community in the southwestern United States to participate in this study. Each participant and their parent/guardian provided informed consent in accordance with guidelines established by the
university’s institutional review board for human research. Potential participants were made aware of this study by local newspaper, webpage, and flyer advertisements soliciting boys in the identified age range who either had or had not been experiencing symptoms of ADHD.

Interested families who self-identified their child as having ADHD symptoms first completed a parent rating scale of ADHD behaviour issued by the primary investigator. This rating scale, which was used by a local child psychiatric clinic, was developed based on the guidelines in the Diagnostic and Statistical Manual of Mental Disorders - 4th edition issued by the American Psychiatric Association (1994). Boys that were rated as having six or more of the symptoms in both ADHD subtype categories were then evaluated by a team of qualified child psychiatrists to determine if these symptoms corroborated a formal, medical diagnosis of ADHD. Only boys who were medically identified as having ADHD, and had no other comorbid disorders as indicated by this team of professionals, were included in the experimental group. In addition, each child did not use and had never been prescribed psychostimulant medication for their ADHD symptoms. All children included in this study were right handed, based on the Edinburgh Inventory (Oldfield, 1971); right legged, based on three standing lower extremity tests to determine preferred swing leg (Surburg & Eason, 1999); free of comorbid disorders; and had a verbal-IQ rating score of at least 80 on the short form of the Wechsler Intelligence Scale for Children – III (Wechsler, 1992).

Apparatus

Two similar custom-built aiming apparatuses were used to obtain upper and lower extremity choice response time data (Figure 1). The lower extremity apparatus was a floor mounted wooden board and the upper extremity apparatus was a table mounted wooden board both consisting of a releasable microswitch (i.e., start pad) and three target pads with corresponding red light-emitting diodes (LED). The exact positioning and sizes of these targets have previously been described in greater detail (Eason & Surburg, 1993; Pedersen & Surburg, 2008). An auditory warning signal was housed in a 13 by 9 cm box resting on the top centre of the board to notify the participant to initiate each trial. In addition, this box contained a yellow LED, located 20 cm directly anterior to the midline target LED, which served as a catch trial stimulus. A portable laptop computer interfaced through a standard parallel printer port recorded the temporal measures associated with these tasks. Custom-built computer software generated randomized blocks of trials and stimulus presentations.

Figure 1. Response time apparatus
Procedures

Each participant was tested individually in an isolated room with adequate lighting. Data were collected by having the participant perform goal-directed aiming movements with each arm and leg in separate trial blocks, with the order of the start leg or arm counterbalanced across participants. Within a trial block, the participant completed nine trials to each of the three target positions (i.e., contralateral, midline, and ipsilateral) and three catch trials, based on stratified random presentation. When the catch trial stimulus illuminated, the participant was instructed to not move from the start pad. A total of 108 upper and lower extremity trials were collected for each participant. Each testing session lasted approximately 30 minutes. Before any data were collected each participant engaged in an orientation session to familiarize with the data collection procedures.

Both upper and lower extremities were tested in a similar fashion. To begin, each participant was required to sit during testing to establish a midline in the seated position. During the upper extremity assessment, the participant sat at a table with their xiphoid process aligned with the start pad and the midline target position. During the lower extremity assessment, the participant sat with his/her non-testing leg off to the side of the apparatus so that the femur of the testing leg was aligned with the start pad and the midline target pad. Before a trial was initiated, the participant was asked to attend to a fixation point at the center of the apparatus. Once attention was acknowledged, the warning buzzer sounded and then a randomly selected foreperiod, of either 1.5, 3.0, or 4.5 seconds, preceded the onset of the target stimulus LED. Once the randomly selected target stimulus was illuminated the participant was instructed to move his arm or leg to the corresponding target pad as quickly as possible. No specific verbal knowledge of results was provided during the testing session.

Data Analysis

Four independent variables were manipulated: group (children with and without ADHD); extremity (upper and lower); side (right and left); and movement direction (contralateral, midline, and ipsilateral). Two dependent variables were measured: RT (time from presentation of stimulus light to release of pressure from the start pad); and MT (time from release of pressure from the start pad until contact with the target pad). An alpha level of 0.05 was determined a priori to test for significant differences. Significant interactions were further examined using simple effects analyses. If warranted, post hoc comparisons were performed using paired sample t-tests (Seaman, Levin & Serlin, 1991).

Results

Reliability

Reliability of the dependent measures for the two groups across both sets of extremities was estimated using intraclass correlation coefficients (Keppel, 1991). These coefficients ranged from 0.92 to 0.98. This finding is in accordance with past investigations of reliability using these apparatuses to assess RT and MT in atypical populations (Eason & Surburg, 1993; Pedersen & Surburg, 2008).
Independency of Dependent Variables

The relationship between RT and MT for the two groups across both sets of extremities was low. Correlation coefficients ranged from $r = 0.08$ to $r = 0.21$. Based on the statistical independence of these two variables, RT and MT were inferentially analysed through separate ANOVAs.

Reaction Time

A 2 (group) X 2 (extremity) X 2 (side) X 3 (direction) mixed design ANOVA was used to analyse RT with extremity, side, and direction considered repeated measures factors. There was a significant interaction between group and movement direction ($F[2,36] = 4.07, p = 0.03$). Simple main effects for this interaction indicated children with ADHD had significant differences concerning movement direction ($F[2,36] = 6.57, p = 0.01$), whereas the control group did not ($F[2,36] = 0.20, p = 0.82$). Post hoc analyses demonstrated that contralateral RTs (516 ms) were significantly slower than ipsilateral scores (496 ms) for children with ADHD.

A significant interaction between movement direction and body side ($F[2,36] = 6.46, p = 0.01$) was found. Simple main effects indicated movement direction varied significantly when children prepared for this task with their left extremities ($F[2,36] = 7.71, p = 0.01$), however there were no directionality differences with the right extremities ($F[2,36] = 0.64, p = 0.53$). Specifically, contralateral RTs (512 ms) were significantly slower compared to the midline (490 ms) and ipsilateral (492 ms) scores when children used their left extremities. There was also a significant main effect for body side ($F[1,18] = 5.55, p = 0.03$). All children had significantly slower left extremity RT scores (498 ms) compared to the right extremities (484 ms).

Movement Time

A similar mixed design ANOVA used to analyse MT revealed a significant interaction between extremity and movement direction ($F[2,36] = 3.87, p = 0.03$). Simple main effects indicated significant variability for movement direction when children executed this task with their upper extremities ($F[2,36] = 9.67, p < 0.01$), but not for the lower extremities ($F[2,36] = 0.27, p = 0.77$). Children had significantly slower upper extremity contralateral MTs (265 ms) compared to the midline (240 ms) and ipsilateral (235 ms) scores. Additionally, there was a significant main effect for movement direction ($F[2,36] = 7.35, p = 0.02$), which indicated that contralateral MTs (259 ms) were significantly slower than midline (244 ms) and ipsilateral (222 ms) scores, and midline MTs were significantly slower than ipsilateral MTs.

Discussion

This study was conducted to determine if boys who experience ADHD symptoms have difficulty initiating midline crossing movements, and if these delays were a function of extremity use. We found boys with ADHD experienced MCI, whereas the age-matched peers achieved CLI. The experimental group results support previous findings from our laboratory using a lower extremity choice response time protocol (Pedersen, Heath & Surburg, 2007;
Pedersen & Surburg, 2005; Pedersen & Surburg, 2008; Pedersen et al., 2004). The directional delays in central processing identified may be due to temporal requirements for between-hemisphere communication (Aglioti, Dall’Agnola, Girelli & Marzi, 1991; Marzi, Bisiacchi & Nicoletti, 1991; Poffenberger, 1912). It has been reported that children with ADHD have smaller anterior regions of the corpus callosum compared to age-matched peers (Giedd et al., 1994; Hynd et al., 1991). This may be responsible for limited transmission capacity between the two brain hemispheres in this subgroup of children.

Although the directional differences found in children with ADHD were more evident in their lower extremities (Figure 2), extremity use was not found to be a significant factor. A visual inspection of this figure indicates that contralateral processing was more difficult for children with ADHD when using their lower extremities. All other data points in this figure signified similar performance between the two groups of children. These data support the suggestion that lower extremity assessments may be more revealing of central nervous system function than upper extremity assessments (Li, McColgin & Van Oteghen, 1998; Peters, 1990; 1988).

![Figure 2a. Lower Extremity Reaction Time by Movement Direction](image1)

**Figure 2a.** Lower Extremity Reaction Time by Movement Direction

![Figure 2b. Upper Extremity Reaction Time by Movement Direction](image2)

**Figure 2b.** Upper Extremity Reaction Time by Movement Direction

**Figure 2 (a & b).** Data points = mean scores +/- 1 standard deviation; open circles = children with ADHD, open squares = control group.

Combining the analyses of upper and lower extremity reaching movements indicated that RTs were significantly slower when using the left extremities compared to the right extremities. This factor also had a significant effect on movement direction. A closer inspection of the RT scores indicated that children with ADHD did not demonstrate MCI when using their right upper extremity, but exhibited inhibition with their other three extremities (Table 1). Most motor control studies have reported a left hand advantage in...
humans when initiating quick reaching movements with the upper extremities (Elliott et al., 1993). However, some research has indicated a possible right hand advantage when task complexity was increased (Garry & Franks, 2000). The results from our study demonstrate a right extremity RT advantage when both upper and lower extremity reaching movements were assessed together. This finding supports the notion that a preference bias should be considered when using the upper extremities to assess the integrity of the central nervous system. In addition, previous investigations using lower extremity reaching movements revealed no significant differences between the side of the body being tested (Pedersen & Surburg, 2008; Pedersen et al., 2004). Therefore, investigations of childhood developmental motor ability may be better suited to include assessments of the lower extremities in conjunction with upper extremity tests in order to develop a more lucid profile of human motor behaviour.

Table 1 Reaction Time Mean Scores (milliseconds)

<table>
<thead>
<tr>
<th></th>
<th>Upper Extremity</th>
<th></th>
<th>Lower Extremity</th>
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<tbody>
<tr>
<td></td>
<td>Right Side</td>
<td>Left Side</td>
<td>Right Side</td>
<td>Left Side</td>
</tr>
<tr>
<td>Contra</td>
<td></td>
<td></td>
<td>Contra</td>
<td></td>
</tr>
<tr>
<td>Midline</td>
<td></td>
<td></td>
<td>Midline</td>
<td></td>
</tr>
<tr>
<td>Ipsi</td>
<td></td>
<td></td>
<td>Ipsi</td>
<td></td>
</tr>
<tr>
<td>ADHD</td>
<td>481</td>
<td>504</td>
<td>498</td>
<td>533</td>
</tr>
<tr>
<td></td>
<td>501</td>
<td>490</td>
<td>510</td>
<td>505</td>
</tr>
<tr>
<td>Control</td>
<td>457</td>
<td>460</td>
<td>460</td>
<td>486</td>
</tr>
<tr>
<td></td>
<td>473</td>
<td>467</td>
<td>473</td>
<td>480</td>
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<td></td>
<td>490</td>
<td>491</td>
<td>491</td>
<td>501</td>
</tr>
</tbody>
</table>

As discussed in earlier reports (Pedersen, Heath & Surburg, 2007; Pedersen & Surburg, 2008), MT comparisons are difficult to interpret when using a choice response time task. Extraneous factors such as biomechanical constraints, movement amplitude, moment of inertia, and differential muscle recruitment patterns within and between participants add unwarranted variability to the comparisons of the six discrete movements used in this study (Anson, 1982; Carey, Hargreaves & Goodale, 1996). These added analyses are beyond the scope of this investigation. In light of these limitations, it is interesting to note that children in this study found executing midline crossing movements (slower contralateral MTs) more difficult with the upper extremities than with the lower extremities. This finding adds further support that upper extremity investigations of developmental maturity may contain confounding elements that are not apparent in lower extremity temporal assessments.
Although the findings from this study were limited due to a small sample size, it was the goal of the investigators to research the developmental behaviour of a small age range of children with ADHD symptoms that had never been prescribed psychostimulant medication. There is an abundance of research that has reported on information processing problems exhibited by children with ADHD, both on and off of medication. However, despite the quick “washout” periods of these drugs concerning their acute effects their long term effects have yet to be established. Conclusions drawn from the literature cannot accurately deduce if behavioural differences are due to symptoms of ADHD, or due to the long term effects of psychostimulant drugs on brain functioning. To truly assess the characteristics of ADHD, more research is needed on children who experience ADHD symptoms but have never been exposed to the effects of psychostimulant drugs (Semrud-Clikeman, Pliszka & Liotti, 2008).

The results from this study have implications for both researchers and practitioners in our field. Caution should be taken by future researchers planning to only utilize upper extremity assessments to infer about the information processing ability of children with atypical development, such as children with ADHD. Based on the RT and MT data collected in this investigation, these individuals should consider assessing lower extremity movements in addition to the upper extremities to depict more accurate interpretations of information processing ability. A more comprehensive assessment of motor control will help to identify an unwanted upper extremity preference bias that may confound interpretations of ability in children that have difficulty performing complex motor skills.

In addition, these data provide support that attaining CLI is a developmental motor milestone not easily achieved by all children, in particular in the lower extremities of children with ADHD. Being able to prepare and execute movements to both sides of the body are prerequisite motor skills for most sports and activities of daily living. Physical education professionals should be able to identify students who have difficulty with midline crossing movements and provide appropriate activities to help them develop more complex motor skill integration.

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South Australian Catholic primary schools sport association fundamental movement skills

South Australian Catholic primary schools sport association fundamental movement skills pilot project

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Abstract

The South Australian Catholic Primary School Sports Association initiated a fundamental movement skill (FMS) project in response to media commentary suggesting that many South Australian children were not attaining the FMS competencies necessary for successful and sustained sport participation. An invitation was extended to member schools to participate in FMS assessment and teaching professional development. Participants were also invited to contribute to an investigation of student achievement of FMS at their school. Students in Year 7 at eleven South Australian primary schools were subsequently measured for their competency in seven fundamental movement skills. Students were assessed according to the written procedure of a fundamental movement skill resource (DECCD, 2006). Implications to emerge from the analysis of the data collected are presented in this report.

Keywords: Fundamental movement skills, Assessment, Primary years

Introduction

Physical education lessons are an ideal setting to improve children’s fundamental movement skills (FMS) as one strategy for enhancing physical activity for health benefits (van Beurden et al., 2002). FMS competency is “the ability to consistently perform basic movements in a technically efficient ...manner” (Jess, Dewar & Fraser, 2004, p. 23). Improving children’s FMS is a strategy towards long term health enhancement as the mastery of FMS “is a potential correlate of the involvement of children’s participation in physical activity” (Oldemar, 2008). In February 2008 the Sunday Mail Editorial suggested, however, that, “many children no longer had the basic motor skills to take up sport”, in an opinion piece commenting on the absence of Health and Physical Education from the proposed ‘core’ subjects of the intended national curriculum (Sunday Mail, 17/02/08). In response to this media commentary the South Australian Catholic Primary Schools Sport Association (SACPSSA) Professional Development Committee initiated an investigation into the fundamental movement skill (FMS) competency of Year 7 students attending SACPSSA member schools.

FMS competence may be associated with habitual physical activity (Fisher et al., 2005) and an enabler for lifelong involvement in physical activity, while an absence of FMS competency may be a contributor to inactivity (Sanders, 2002). It has been reported that children with poor coordination have lower perceptions of competence and self worth (Rose, Larkin and Berger, 1997, cited in McIntyre, Hands & Parker, p.3). A relationship between
FMS competency and healthy weight is implied in research showing a higher proportion of healthy weight children showed advanced mastery of FMS (SPANS Report, 2004) while overweight students were more likely to possess low levels of FMS than those who weren’t overweight (Okley et al., 2004). A lack of skill and perceived ability to be physically active is presented as reason why obese children participate in less physical activity (Booth et al., 1999). Strategies to prevent unhealthy weight status among children might, therefore, include teaching to increase FMS proficiency (Okely et al., 2004).

The importance of children acquiring FMS through structured and purposeful learning environments has been emphasised (Payne & Isaacs 2005; Miller, 2006). Primary school physical education is one context where FMS can be taught, experienced and refined. It is a potentially important contributor to sustained, successful and satisfying participation in sport, games and leisure activities (Miller & Dickson, 1999; Okley & Booth, 2004; Miller, 2006). A common misconception is that young children just naturally learn how to run, throw, and catch with competence (Goodway & Branta 2003; Payne & Isaacs 2005), however, these movements must be taught, practiced and reinforced (Gallaghue & Ozmun, 1998; Okely & Booth, 2004). The primary years of schooling are particular important in the provision of structured learning environments as the contribution of physical education specialists in the secondary years of schooling may come too late to impact on a majority of children’s movement competence and confidence (Kirk, 2005). Furthermore, it has been suggested that once children reach adolescence, where growth is rapid, the ability to learn new movement skills decreases (Austin, Hayes & Miller, 2004).

FMS competency is an area of physical education warranting research. Children who lack FMS are more likely to experience frustration and difficulty in learning more advanced movement skills, have lower levels of health related fitness, participate less in organised sport and games, have higher levels of adiposity, are more likely to experience the consequences of ridicule from peers, and to feel discouraged from participating in organised sports (Okely & Booth, 2004). Interestingly, some studies have indicated that children with better FMS are reported to have higher self esteem and self confidence (Martin & Hands, 1997; Miller & Dickson, 1999), while children with poor FMS may be more likely to misbehave at school (Larkin & Ravimov, 2007). There are, therefore, potential benefits to FMS competency beyond the implications for continued participation in physical activity opportunities.

There is great value, therefore, in the investigation of FMS as part of research exploring impediments to physical activity and sport participation (Miller, 2006).

Research for this paper failed to generate evidence of reported investigations of children’s FMS competency in South Australian primary schools. The curriculum framework for Health and Physical Education (DECS, 2004) suggests that children should be able to demonstrate confidence in coordination and control of movement skills by the end of Year 2 and, that children should be able to confidently perform and repeat movement sequences with control, balance and coordination by the end of Year 4. Improving teachers’ ability to identify students’ proficiency at FMS and to tailor teaching to meet the developmental needs of students, would seem to be a reasonable strategy towards teaching which enhances student achievement of the physical education curriculum outcomes aligned to FMS.
Generally, Australian FMS research suggests that lower than anticipated numbers of children are at levels of proficiency at benchmark year levels across most of the FMS (Walkley et al., 1993; Booth et al., 1999; Sanders, 1998; van Beurden et al., 2002; Austin et al., 2004; Okely & Booth, 2004; Hayes & Miller, 2004; Miller, 2006). A lack of explicit skill teaching and little focus upon helping students to improve basic movement sequences in many primary school settings has been suggested (Hickey, 1992). The indication that movement competency is important for maintaining an active lifestyle and healthy weight profile suggests well planned and considered movement skill learning programs are an important component of the primary years of schooling (Martin & Hands, 1997).

**Background**

The South Australian Catholic Primary Sports Association (SACPSSA) invited participation in a FMS Assessment Pilot Project from member schools (see Table 1). Twenty eight teachers attended the first phase involving training in FMS assessment. At the completion of a full days training in FMS assessment the Phase 1 participants were invited to participate in Phase 2, which consisted of the assessment of FMS competency of children in Years 2 and 7 at their school. Fourteen teachers from 11 schools continued to Phase 2 of this project. This paper will report on the data collected at the conclusion of Phase 2 of this project, with a particular focus on the results of the FMS testing of Year 7 children.

**Table 1: The 4 Phases of the SACPSA Pilot FMS Project**

<table>
<thead>
<tr>
<th>Year 1</th>
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<tbody>
<tr>
<td>Phase 1: Professional Development Day, Term 2 -</td>
</tr>
<tr>
<td>Fundamental Movement Skill Assessment Training</td>
</tr>
<tr>
<td>Phase 2: Assessment of students in Years 2 and 7</td>
</tr>
<tr>
<td>Phase 3: Professional Development Day, Term 3-</td>
</tr>
<tr>
<td>Fundamental Movement Skill Teaching Ideas</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 4: Fundamental Movement Skill Assessment and Teaching - to become embedded practice in the ‘light house’ schools.</td>
</tr>
</tbody>
</table>

The primary years teachers involved in this project were mainly ‘key teachers’ of physical education responsible for the teaching of physical education classes from Reception to Year 7. Typically, they taught students physical education for one lesson each week with the remainder of students’ physical education curriculum time being the responsibility of the class teachers. The majority were either in their first five years of teaching (N= 6) or experienced teachers with ten or more years of experience (N= 7). While the majority of the
teachers participating in Phase 2 indicated that they had previously engaged in some form of assessment of children’s FMS (N=8), none had undertaken FMS assessment by following written protocols from a standardised FMS program.

Methods

Data analysed in this paper comes from two sources. The first source is collated data from the FMS assessment of Year 7 children. This provides indicators of the proportion of children who have mastered selected FMS by Year 7. The fundamental movement skills chosen for selection were on the basis of the training that occurred during Phase 1 (Table 2.) and, as they were considered by the teachers to be antecedent to the more complex sport specific movement patterns of common community sports. Specific training of FMS assessment was conducted using the established protocols of a FMS program (DECCD, 2006). Training included repetitive rating by each prospective tester of peers performing each FMS, and assessment of children performing FMS’s on a video (NSW Department of Health, 2003). The DECCD (2006) Fundamental Motor Skills resource assessment procedures were chosen as the resource was readily available over the Internet, and so participants did not have to rely on the release of school funds to purchase a resource in order to participate in Phase 2 of the project. There is no South Australian curriculum framework (SACSA) (DECS, 2005) specific FMS teaching and assessment resource.

Table 2 SACPSSA FMS Year Seven Assessment

<table>
<thead>
<tr>
<th>Skill Description</th>
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<tbody>
<tr>
<td>Two-handed Strike</td>
</tr>
<tr>
<td>Kicking - Stationary Ball with preferred foot</td>
</tr>
<tr>
<td>Kicking - Stationary Ball with non-preferred foot</td>
</tr>
<tr>
<td>Running</td>
</tr>
<tr>
<td>Throwing – over arm – preferred hand – small ball</td>
</tr>
<tr>
<td>Catching – one hand – preferred – small ball</td>
</tr>
<tr>
<td>Catching – one hand – non-preferred – small ball</td>
</tr>
</tbody>
</table>

The methodology was consistent with a quasi-experimental design in which students were tested within the school environment (Miller, 2006). The chosen fundamental movement skills were assessed using standardised tests with a written protocol (DECCD, 2006). The tests completed by the Year Seven children were for FMS competency that should be well attained years earlier; Year Reception (running), Year One (kicking a stationary ball), Year Two (one-handed catch with preferred hand using a small ball, and the
two-handed strike) and Year Three (one-handed catch with non-preferred hand using a small ball and, throwing overarm with the preferred hand).

The tests were conducted using the ‘Move it Groove It’ project grading (van Beurden et al., 2003). The teacher firstly demonstrated the FMS to the student. The student then performed the FMS five times while the teacher observed and rated as present or absent each skill component of that FMS without the provision of verbal feedback. A component was deemed as present if the student performed it competently on at least four of the five trials. A result of 4-5 successful/5 of the FMS tested was deemed to be competent (present), 3 successful/5 was deemed near competent and 0-2 successful/5 was deemed not competent.

Data was collected from 221 Year 7 students, 116 girls and 105 boys. The data was collated centrally at the school of the SACPSSA Committee Principal Representative.

The second set of data comprised the written reflections evaluating Phase 1 and 2 of the project. The survey consisted of open ended response questions. The data was initially collated by a member of the SACPSSA committee, and then a tertiary physical education academic was asked to categorise and analyse the raw data. An inductive process was employed, consistent with a qualitative research approach, to present the emergent themes. Categorisation by themes generated a recount of knowledge in a manner that portrayed explicit awareness of the perspectives to surface and the validity of the assertions this produces (Thomas & Nelson, 2001).

### Year 7 FMS Assessment Results

At Year 7 the prevalence of mastery of each FMS reflects more boys were assessed as competent at each FMS, than were girls (Graph 1). In only two of the FMS’s did the percentage of girls assessed as competent rise above 50% of the students assessed (Over arm throw with the preferred hand [53%] and catching a small ball one handed with the preferred hand [58%]). There was one FMS where the number of boys assessed as competent was below 50% of the sample (kicking a stationary ball with the non preferred foot [49%]). While the competency numbers for the boys initially looks larger than anticipated, it is tempered by the knowledge that each of the FMS tested were benchmarked for competency attainment well before Year 7.

The results reveal the many students are close to achieving competency of the FMS tested (Graph 2.). The results also indicate the percentage of girls assessed as not competent is higher than that of the boys for each of the FMS selected (Graph 3.). While the number of boys assessed as not competent is below 10% for each FMS tested the number of girls assessed as not competent exceeds 10% of the total number of girls tested in all but sprinting and kicking a stationary ball with the preferred foot.
Graph 1: Year 7 FMS Assessment – Competency

Graph 2: Year 7 FMS Assessment – Near Competent

Graph 3: Year 7 FMS Assessment – Not Competent
Discussion

While much of the research into FMS achievement indicates that the prevalence of mastery is low, the results in this project appear, at least initially, to be encouraging. However, this is contexted by the observation that the achievement of mastery of each of the FMS selected is indicated years earlier than Year 7 of schooling. As these are FMS that should be mastered by Year 3 at the latest, the revelation that more students were not assessed as competent emerged as a concern to the teachers. The results indicate that even in primary school settings where physical education is delivered by teachers committed to the achievement of curriculum benchmarks many students are failing to transition from the primary to secondary school with the level of FMS proficiency necessary to engage competently and confidently with the requirements of secondary physical education curriculum movement outcomes.

Gender differences were found in FMS competence scores with boys recording higher overall scores for the FMS tested. The strength of the trend towards a differential in gender competency of FMS by Year 7 presents possible implications for the continued involvement in sport and sport related leisure activities, particularly for the girls not assessed as competent. As they move into secondary schooling higher levels of movement skill competence will offer greater opportunities to engage and be perceived as successful (Stodden & Goodway, 2007) in the various physical activities that typically comprise the content of secondary physical education curriculum. The literature on FMS previously presented in this paper suggests that more competent students will be more likely to self-select higher levels of physical activity (Stodden & Goodway, 2007). The importance of students leaving primary schools and transitioning from Year 7 to Year 8 and secondary education with actual and perceived FMS competence as an enabler for confident and competent engagement in physical education, and the self selection of physical activity involvement, gives weight to the import for students to achieve FMS competency benchmarks. A greater emphasis on object control skills and competency on both preferred and non preferred side of the body should take place, especially for girls as their scores across all FMS were lower than those of boys.

There is a general acceptance that FMS performances reflect the degree of learning to which the individual is exposed (Miller, 2006). The numbers of students assessed as near competent indicates that in the schools involved in this project targeted teaching of the students near competent would possibly impact positively on the total number of students transitioning from the primary to secondary schools as competent. As the FMS chosen were ones that were considered by the teachers to be the precursors to the development of more complex sport specific movement patterns (sprinting, kicking, throwing, catching and striking a ball) of common community sports, the targeted teaching of female students assessed as near competent may be a particularly positive strategy for their actual and perceived ability to engage with opportunities in sport related physical activity into the future. FMS assessment information may also be useful to students as they benefit by having a goal/ skill areas [thru feedback] to work towards and to work on (teacher survey comment). In essence, one of the main learnings to emerge for the teachers was that FMS may be a medium through which it can be communicated transparently, obviously and
precisely to students what element/s they can refine to improve their overall movement skill performance.

Students in the primary years require a physical education curriculum with sufficient time devoted to explore, experiment and practise skilled movement (Pill, 2007). Time is the critical issue (teacher survey comment). Time is an important factor in the development of movement skill proficiency (Graham, 1987; Alderman et al., 2006; NSW Education Dept, 2005; Beighle & Pangrazzi, 2006). It has been suggested that greater curriculum time, resourcing and training of teachers is required to increase the proportion of students who have mastered the FMS common sports, games and other physical activities (Booth, et al., 1999). One of the themes to emerge from the analysis of the teachers survey responses is that the factor that most inhibits them from teaching and assessing achievement of FMS benchmarks is lack of time. “More practical activities to be done by classroom teachers to support my PE lessons” is typical of the responses. While it could be considered a positive staffing arrangement that most of the schools involved in this project had employed key teachers of physical education in this project these teachers typically had access to students for one lesson of physical education each week. This means that even in primary schools with key teachers of physical education often the majority of physical education curriculum time is still serviced by the class teacher. A positive direction would, therefore, be to engage the class teachers in FMS professional development (Miller & Dickson, 1999).

It also emerged that the teachers involved in Phase 2 of this project also believed that their ability to teach for the achievement of FMS competency would assist student achievement of the Health and Physical Education Outcomes from the Physical Activity and Participation Strand of the curriculum framework (DECS, 2004). Additional practical ideas/drills/games which specifically focus on each FMS (teacher survey comment) was a typical request. The absence of a local FMS program linked to the SACSA HPE Framework (DECS, 2004) was questioned and considered a constraint in enhancing their own work and that of class teachers in constructing learning environments consistent with the need to progress students through the physical education continuum of achievement. A program resource was considered potentially beneficial for the enactment differentiated physical education curriculum that could engage and meet the FMS learning needs of individual students. Finding an assessment strategy that is quick & easy to administer was considered central to expanding FMS teaching and assessment beyond key teachers of physical education to include classroom teachers.

The importance of the teacher giving due consideration to learner characteristics and therefore, modifying FMS teaching and the learning environment as an element of FMS teaching has previously been suggested (Okely & Booth, 2004). If, as suggested in the literature reviewed earlier in this paper, FMS proficiency is important in the development of students actual and perceived competence and self worth, “it is important that primary years’ educators be able to implement curriculum with a focus on movement skill development” (Pill, 2007, p.27). This implies directed activity time purposeful in its intention to develop students’ movement skill competency, not simply the provision of physical activity accumulation, because children require directed play to develop FMS (Collier & Oslin, 2001).
Space to teach and room to move are two important factors in the provision of physical education in primary school settings (Pill, 2007). A further impediment to the teaching of FMS to emerge was the restriction on suitable activity space on the grounds of most of the schools. This restricted the type and nature of activities that could be conducted on the school grounds. Some of the schools in this study were described as ‘older ‘schools situated in the inner city suburbs where playing space near the school is also very limited. Using community open space was, therefore, not an easy option to pursue because it was not only limited, but off campus activities required extra staffing to and from off campus venues to meet supervision guidelines.

Conclusion

The benefits to be gained from evaluating motor development in young children far outweigh the problems and pitfalls (Gallaghue, 1983). The teachers involved in this study identified that training in FMS assisted their ability to analyse movement elements that students need to refine or modify to improve the efficiency or outcome of the movement. The ability to deconstruct a movement into its component parts was identified as a valuable teaching skill for the provision of specific movement performance feedback. All of the teachers contributing to Phase 2 of this project indicated that FMS assessment assisted them to identify if students meeting Standard 1 and 2 curriculum outcomes (DECS, 2004). Despite its potential benefits, the time it takes to assess students FMS competency is a constraint to the continued implementation of FMS testing.

This study indicates that the potential benefits to student transitioning from primary to secondary schooling with FMS competence and confidence from both key teachers of physical education and class teachers in primary schools undertaking FMS teaching and assessment professional development. FMS teaching and assessment in South Australian primary schools may be assisted if there was a resource with obvious connection to the South Australian Curriculum Standards and Accountability (SACSA) framework (DECS, 2004). An absence of information about FMS attainment of students in South Australian schools also indicates that this is an area requiring further investment of research effort in order to assist schools and the school systems understand how well they construct teaching and learning to achieve curriculum outcomes and prepare students to be able to sustain active lifestyles as a component of health living.

References


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Preventing physical activity induced heat illness in school settings

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Queensland University of Technology, Australia

Abstract

The climatic conditions of tropical and subtropical regions within Australia present, at times, extreme risk of physical activity induced heat illness. Many administrators and teachers in school settings are aware of the general risks of heat related illness. In the absence of reliable information applied at the local level, there is a risk that inappropriate decisions may be made concerning school events that incorporate opportunities to be physically active. Such events may be prematurely cancelled resulting in the loss of necessary time for physical activity. Under high or extremely high risk conditions however, the absence of appropriate modifications or continuation could place the health of students, staff and other parties at risk. School staff and other key stakeholders should understand the mechanisms of escalating risk and be supported to undertake action to reduce the level of risk through appropriate policies, procedures, resources and action plans.

Keywords: Heat, Illness, School, Physical activity, Monitoring

Introduction

The health and social benefits of regular physical activity are widely documented. Over the past two decades, there has been steady growth in the range of epidemiological evidence supporting the role that physical activity can play in reducing risk for a range of health problems including cardiovascular disease, type 2 diabetes, some forms of cancer, osteoporosis and the prevention of injury related falls (Bauman, Bellew, Vita, Brown & Owen, 2002). The Healthy Kids Queensland Survey 2006 (Abbott et al., 2007) report identified increasing rates of overweight and obesity among Australian children and adolescents during the period 1985 to 1995. The same report compared 2006 Queensland data to national data from 1985 and 1995 and indicated a continued upward trend for rates of overweight and obesity. Physical activity research has also demonstrated positive associations with mood, alertness, stress, self esteem, anxiety and depression (Bauman, Bellew, Vita, Brown & Owen, 2002). Australia’s Health 2008 (Australian Institute of Health and Welfare, 2008), highlights the importance of physical activity as a necessary action for healthy growth and development of children. The points raised here support regular exercise as an important investment for all age groups.

A significant proportion of Australians do not meet the National Physical Activity Guidelines (Australian Institute of Health and Welfare, 2008). The Australian Government, Department of Health and Ageing (2004a & 2004b) recommends that school age children and adolescents should be engaged in ‘at least sixty minutes of moderate to vigorous physical
activity every day’. Developing positive attitudes to exercise is essential for the establishment of an important health behaviour: engagement in regular physical activity. The school context is one setting where opportunities for physical activity must be provided. A common problem in many Australian schools today is that of a crowded curriculum. With many different aspects of the school curriculum competing for time, opportunities for children and adolescents to be physically active need to be fully utilised.

The climatic conditions of tropical and subtropical regions within Australia present, at times, extreme risk of physical activity induced heat illness. The purpose of this paper is to identify how to recognise and manage the risk of physical activity induced heat illness in school settings. The latter section will identify practical methods that can be applied at the local level. The intention of this paper is to indicate how evidence based decisions can be made, in order to prevent ill informed decisions. Ill informed decisions may be detrimental to students, staff and other relevant stakeholders in two ways, through:

- the loss of time to be physically active due to cancellation of activities during moderate to high risk conditions when the activities could safely occur with appropriate modifications and provisions; and

- placing the health and safety of students, staff and other stakeholders at risk by continuing to run an activity, as previously scheduled, during extreme risk conditions.

**Physical activity induced heat illness**

Prolonged levels of moderate to vigorous physical activity results in the production of heat which we attempt to regulate by voluntary actions including clothing choices and seeking shade or involuntary physiological processes of heat dissipation via radiation, convection, conduction and evaporation. An inability to remove the additional heat and subsequent increase in core temperature can result in heat illness. The traditional definition of heat illness includes a progression of increasing symptom severity; from cramps, to exhaustion and finally heat stroke which can be fatal.

Heat cramps involve a painful spasm of skeletal muscle. Sweating results in fluid and electrolyte (particularly sodium) losses from the body. Heat cramps are thought to occur when there is insufficient salt in ingested fluids (Armstrong, Casa, Millard-Stafford, Moran, Pyne & Roberts, 2007; Greaves, Porter, Hodgetts & Woolard, 2006). The disturbance in the balance between sodium, potassium and chloride across the cell membrane is thought to cause the spasm. Replenishing electrolytes alleviates the problem.

Heat exhaustion can present a variety of symptoms such as headache, dizziness, weakness, elevated heart rate, elevated breathing rate, low blood pressure and mildly elevated core temperature (<40°C). Heat exhaustion is caused by a failure of the cardiovascular system to simultaneously supply adequate blood flow to vital organs and working muscles, as well as to the skin for heat loss purposes (Donoghue, Sinclair & Bates, 2000). This is the result of a decrease in blood volume from fluid and salt depletion from excessive sweat loss.
Preventing physical activity induced heat illness in school settings

(Greaves et al., 2006). Treatment should include moving the individual to a cool location, ingestion of fluid and electrolytes, and lying in a supine position with legs elevated.

Heat stroke is the most severe form of heat illness as it can result in permanent tissue damage or can even be fatal. Heat stroke can occur in conditions of high heat and humidity with no physical activity (classic heat stroke) or during physical activity (exertional heat stroke). In both cases, core body temperature is elevated to ≥ 41°C due to a failure of the heat regulating mechanisms to facilitate heat loss at its rate of production (Greaves et al., 2006). Early symptoms of this condition are similar to those seen in heat exhaustion but can progress to disorientation and confusion, irrational or unusual behaviour, loss of balance and muscle function, collapse and unconsciousness. Classic heat stroke commonly presents with hot and dry skin due to a cessation of sweating, however exertional heat stroke can occur whilst the skin appears sweat-soaked and pale (Armstrong et al., 2007). Immediate emergency medical attention should be sought if heat stroke is suspected.

Are children more susceptible to physical activity induced heat illness?

There are many physical and physiological characteristics specific to children, which have traditionally been indicated to predispose children to heat illness (Falk, 1998); although these are now being challenged (Rowland, 2008). These characteristics primarily focus on a larger body surface area to mass ratio, and a decreased sweating response. The average 8 year old has a 50% greater body surface area to mass (BSA/M) ratio than that of an adult, however above the age of 13 years this difference becomes insignificant. An increased BSA/M ratio is actually beneficial for heat loss as it increases heat dispersion through the skin via radiation. However, when the ambient (air) temperature is greater than the skin temperature, the high BSA/M ratio becomes disadvantageous as the body begins to absorb heat from the environment (an example of this is when a child is left in a car with the windows up). Ambient temperatures would therefore have to exceed 38°C for the child’s high BSA/M ratio to become a potential liability.

Prepubertal boys have a reduced sweating capacity compared with adults. This is despite sweat glands being present from birth and sweat gland density reaching its maximum around 2-3 years of age (Falk, 1998; Armstrong & Maresh, 1995). The reduced sweating capacity reflects a lower output of sweat per gland as well as a decreased sensitivity of output to a given air temperature. Sweat rates of nine year olds are approximately half that of adult males, but equivalent to adult females (Kawahata, 1960) indicating a relationship to a lack of male sex hormones (Inoue, Kuwahara & Araki, 2004). Adult females (and therefore prepubertal children) are not more at risk of heat illness due to their reduced sweating response as they are capable of efficient heat loss through their higher BSA/M ratio.

Contrary to historical assumptions, current physiological research does not support the notion that children participating in activity are more susceptible to exercise induced-heat illness than adults. Indeed cases of serious heat-illness in child athletes are absent from the medical literature; highlighted by a ten year survey of emergency department presentations, hospital admissions and ambulance responses in Cairns (Tropical, North Queensland) failing to discover a single case of heat-related illness in a child athlete (Brun & Mitchell, 2006). A reason why heat-related illness may be commonly associated with children, is the greater incidence of heat stroke during heat waves (unrelated to activity) in paediatric age groups
(Adcock, Bines & Smith, 2000; Nakai, Itoh & Morimoto, 1999), but this is restricted to children under the age of four and is primarily related to parent neglect and pre-existing chronic illness (Yaron & Niermeyer, 2004).

**Sports Medicine Australia – Policies and guidelines for heat illness and hot weather**

Sports Medicine Australia (SMA) is Australia’s self-proclaimed peak authority on medicine and science in physical activity and sport. They provide advice and guidelines to help create a safer environment for Australians of all ages engaged in sport and physical activity. SMA has produced several publications including; ‘Preventing Heat Illness in Sport’ policy statement, ‘Hot Weather Guidelines’ and a fact sheet, ‘Beat the heat – Playing and exercising safely in hot weather’ which can all be accessed from the SMA website [www.sma.org.au](http://www.sma.org.au). Tables 1 and 2 were sourced directly from these documents and highlight appropriate individual and organisational responses. Table 1 provides recommendations appropriate for hot and dry weather conditions. Table 2 is based upon the Wet Bulb Globe Temperature (WBGT) Index and provides recommendations for humid weather conditions that are more likely to be experienced in tropical and subtropical regions of Australia.

**Table 1** Environmental factors – Ambient temperature (most useful during hot and dry weather) (Source: Sports Medicine Australia, 2007a, p. 3)

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>Relative humidity</th>
<th>Risk of Heat Illness</th>
<th>Recommended management for sports activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 20</td>
<td></td>
<td>Low</td>
<td>Heat illness can occur in distance running. Increase vigilance. Caution over-motivation.</td>
</tr>
<tr>
<td>21 - 25</td>
<td>Exceeds 70%</td>
<td>Low - moderate</td>
<td>Increase vigilance. Caution over-motivation.</td>
</tr>
<tr>
<td>26 – 30</td>
<td>Exceeds 60%</td>
<td>Moderate</td>
<td>Moderate early pre-season training. Reduce intensity and duration of play/training. Take more breaks.</td>
</tr>
<tr>
<td>31 – 35</td>
<td>Exceeds 50%</td>
<td>High – very high</td>
<td>Uncomfortable for most people. Limit intensity. Take more breaks. Limit duration to less than 60 minutes per session.</td>
</tr>
<tr>
<td>36 and above</td>
<td>Exceeds 30%</td>
<td>Extreme</td>
<td>Very stressful for most people. Postpone to a cooler conditions (or cooler part of the day) or cancellation.</td>
</tr>
</tbody>
</table>

**Table 2** Environmental factors – Wet Bulb Globe Temperature Index (most useful during humid weather) (Source: Sports Medicine Australia, 2007a, p. 4)

<table>
<thead>
<tr>
<th>WBGT</th>
<th>Risk of thermal injury</th>
<th>Recommended management for sports activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>Low</td>
<td>Heat illness can occur in distance running. Increase vigilance. Caution over-motivation.</td>
</tr>
<tr>
<td>21 - 25</td>
<td>Moderate to high</td>
<td>Increase vigilance. Caution over-motivation. Moderate early pre-season training intensity and duration. Take more breaks.</td>
</tr>
<tr>
<td>26 - 29</td>
<td>High - Very high</td>
<td>Limit intensity. Limit duration to less than 60 minutes per session</td>
</tr>
<tr>
<td>30 and above</td>
<td>Extreme</td>
<td>Consider postponement to a cooler part of the day or cancellation (allow swimming).</td>
</tr>
</tbody>
</table>
Determining and managing risk

Analysis of Australian climate data

The climate records for all Australian state and territory capitals, extending back the last 13 years (Perth) and in some cases, in excess of 150 years (Brisbane, Darwin, and Sydney), as published by the Australian Bureau of Meteorology (BOM) were accessed to calculate the wet bulb globe temperature (WBGT) and the number of days where the ambient temperature exceeded 35°C for each month. The wet bulb globe temperature was determined from the mean high temperature and the relative humidity recorded at 3pm using the following equation adapted for use by organisations unable to access a wet bulb globe thermometer (American College of Sports Medicine, 1984).

\[
WBGT = 0.567 \times Ta + 0.393 \times \left( \frac{rh}{100} \times 6.105 \times e^{\frac{17.27 \times Ta}{(237.7 + Ta)}} \right) + 3.94
\]

Where \( Ta \) is the ambient temperature in degrees Celsius and \( rh \) is the relative humidity as a percentage.

The results of the climate data analysis are shown in Tables 3 and 4. Table 3 highlights mean number of days exceeding 35°C and when paired with the SMA ambient temperature guidelines (Table 1) produces the following observation. Darwin recorded the greatest number of mean days exceeding 35°C with 42, followed by Perth (22), Adelaide (14) and Melbourne (11). All Australian state and territory capital cities registered at least one month of one or more days exceeding 35°C.

| Table 3 Australian state and territory capital cities – Mean number of days exceeding 35°C |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Adelaide               | 5   | 4   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 3   |
| Brisbane               | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   |
| Canberra               | 3   | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   |
| Darwin                 | 3   | 2   | 3   | 5   | 2   | 0   | 0   | 1   | 3   | 7   | 9   | 8   |
| Hobart                 | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Melbourne             | 4   | 3   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 2   |
| Perth                  | 6   | 6   | 4   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 5   |
| Sydney                 | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 1   |

Given that this comparison is based on recommendations appropriate for hot and dry conditions, it is important to examine WBGT data, in line with SMA WBGT guidelines for tropical and subtropical regions that typically exhibit higher humidity levels. Table 4 indicates mean monthly WBGT which can be paired with the SMA WBGT guidelines (refer Table 2). Darwin met or exceeded a WBGT of 30 in all but one month of the year, with Brisbane reaching this level from December through to February. No other state or territory
capital met or exceeded a WBGT of 30 (refer Table 4). Brisbane, in comparison to its high
WBGT averaged only 4 days when the temperature exceeded 35°C. It is therefore important
to ensure that the guidelines used are appropriate for the climatic conditions experienced at
the local level.

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Australian state and territory capital cities – Mean monthly Wet Bulb Globe Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ja</td>
</tr>
<tr>
<td>Adelaide</td>
<td>26</td>
</tr>
<tr>
<td>Brisbane</td>
<td>30</td>
</tr>
<tr>
<td>Canberra</td>
<td>25</td>
</tr>
<tr>
<td>Darwin</td>
<td>36</td>
</tr>
<tr>
<td>Hobart</td>
<td>22</td>
</tr>
<tr>
<td>Melbourne</td>
<td>25</td>
</tr>
<tr>
<td>Perth</td>
<td>28</td>
</tr>
<tr>
<td>Sydney</td>
<td>27</td>
</tr>
</tbody>
</table>

Implications for school settings

The SMA policy statement, Preventing Heat Illness in Sport (2007b), indicates that
activities involving moderate to high intensity activity should be scheduled to avoid extreme
risk conditions (≥36°C ambient temperature or WBGT ≥30°C). Responding to this guideline,
all schools in Australian capital cities would be forced to cancel or postpone events at some
point in the school year. Ambient temperature cannot be solely utilised as an index of heat
stress as it does not recognise the impact of humidity in assessing an individual’s ability to
regulate heat. WBGT takes into account not only ambient temperature, but also humidity,
solar radiation and wind velocity. Comparison of the SMA policy extreme risk guidelines
(≥36°C ambient temperature or WBGT ≥30°C) with data presented in Tables 3 and 4
highlights the two different climatic conditions experienced within Australia: the hot dry
conditions of the south (Adelaide, Melbourne) and the hot wet conditions of the north
(Darwin, Brisbane). The ambient temperature recommendation alone is not suitable for the
hot humid environments of subtropical and tropical regions.

Children are incorrectly believed to be at an increased risk of heat illness, compared
to adults. Despite physiological (sweating response) and anatomical (BSA/M ratio)
differences that might influence heat loss, recent research highlights that the
thermoregulatory capabilities of children are not inferior to adults. There is also no reported
increased incidence of exercise-related heat illness in children. Regardless, the high
temperatures and humidity in subtropical and tropical regions of Australia increases the risk
of heat illness for all individuals. The climatic conditions should not be used as a reason to
exclude students from opportunities to be physically active. A management process involving
staff, parents, students and other stakeholders should be undertaken to reduce risk, and only
under extreme conditions should events be postponed or cancelled. Many administrators and
teachers in schools are aware of the general risks of heat related illness. School staff must
understand the mechanisms of escalating risk and be supported to undertake action to reduce
the level of risk through appropriate policies, procedures, resources and action plans.
Determining risk at the local level – Evidence based decisions and actions

Schools can develop proactive procedures for monitoring conditions during curricular and co-curricular activities offered both on and off campus. These activities could include physical education classes, intra-school sport, inter-school sport, recreational activities, out of school hours programs and spontaneous play during breaks. The SMA heat illness policy statement and guidelines provide recommendations for managing risk of heat illness during physical activity. This section will provide examples of actions that can be taken at the school level to make informed and justifiable decisions.

For schools in tropical and subtropical locations, determining WBGT for comparison with the SMA WBGT index (Table 2) supports an evidence based approach to determining and managing heat illness risk. WBGT can be monitored at the local level by recording three separate temperature readings. These three temperature readings include ambient temperature (Ta), natural wet-bulb temperature (Tnwb) & black globe temperature (Tg). Ta is measured using a thermometer in the shade (shielded from radiation) whereas Tg and Tnwb are measured using thermometers that are not shielded from wind or solar radiation. The three readings represent the combined effects of air temperature, humidity, solar radiation and airflow (Australian Government, Bureau of Meteorology, 2009). WBGT can also be estimated when all of the meteorological information listed above is not available. Table 5 outlines five different methods for determining WBGT and estimated WBGT at the local level. Each of the methods have been critiqued to indicate potential advantages and disadvantages.

The SMA WBGT index (Table 2) indicates appropriate strategies for minimising risk. School policies, procedures and action plans should recognise the principle of escalating risk. That is, up to the extreme risk category, increasing levels of modification can be implemented, appropriate to the level of risk. When climatic conditions demonstrate an extreme level of risk, alternative activities (e.g. aquatic) may be offered where practical. Under the same conditions, scheduled sporting events may need to be delayed pending ongoing risk assessment, or postponed. It should also be noted that a proactive approach to heat illness should be encouraged (e.g. fluid availability, access to shade, clothing type) at all levels of risk, for all stakeholders, rather than a reactive response to higher levels of risk.

Table 5 Determining risk at the local level

<table>
<thead>
<tr>
<th>Methods for determining risk</th>
<th>Potential advantages</th>
<th>Potential disadvantages</th>
<th>Estimated expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method 1 – Observations from the closest BOM weather station</strong></td>
<td>• Information is regularly updated.</td>
<td>• Estimated WBGT based upon moderately high solar radiation in light wind conditions. Less accurate</td>
<td>Nil</td>
</tr>
</tbody>
</table>
comfort observations.

2. Find the closest weather station from the list, then compare the estimated value for WBGT sun (°C) with the SMA WBGT index guidelines (refer Table 2).

during cloudy or windy conditions & when the sun is close to or below the horizon.
- Could be variations between local conditions and those observed at the closest BOM weather station.

<table>
<thead>
<tr>
<th>Method 2 – Use local ambient temperature and relative humidity to estimate WBGT</th>
<th>• Local value for WBGT (estimated).</th>
<th>• Estimated WBGT.</th>
<th>• Greater number of steps than other methods.</th>
<th>$30 – 100 (AUD)</th>
</tr>
</thead>
</table>
| 1. Measure ambient temperature and measure or estimate relative humidity using either of the two types of equipment listed below (measurement taken in the shade, one metre above ground level and away from radiant heat sources).
- Digital thermometer/hygrometer.
- Psychrometer (dry-bulb thermometer & wet-bulb thermometer).
| 2. If using a psychrometer, estimate relative humidity by using a psychometric chart.
| 3. Determine the estimated WBGT from ambient temperature and relative humidity via one of the steps below.
- Enter data into the WBGT formula.
- Use the Steadman conversion table (www.bom.gov.au)
- Enter data into the spreadsheet available.
| | | | | |
| Method 3 – Measure WBGT locally (estimated value) | • Instantaneous value for WBGT (estimated) – No requirement for conversion tables or formulas.
- Observations reflect
| • Must be calibrated regularly to maintain accuracy.
| $200 – 600 (AUD) |
| 1. Use a handheld device (e.g. Kestrel 3500) to produce an estimated WBGT reading.
| 2. Compare the reading with the SMA
| | | | |
Preventing physical activity induced heat illness in school settings

<table>
<thead>
<tr>
<th>WBGT index guidelines (refer Table 2).</th>
<th>conditions at the site.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Portable (can be used for off-campus activities).</td>
<td>WBGT.</td>
</tr>
<tr>
<td></td>
<td>• Must be calibrated regularly to maintain accuracy.</td>
</tr>
<tr>
<td><strong>Method 4 – Measure WBGT locally (true value)</strong></td>
<td></td>
</tr>
<tr>
<td>1. Use a handheld device to produce a true WBGT reading.</td>
<td></td>
</tr>
<tr>
<td>2. Compare the reading with the SMA WBGT index guidelines (refer Table 2).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• True WBGT.</td>
</tr>
<tr>
<td></td>
<td>• Instantaneous value for WBGT – No requirement for conversion tables or formulas.</td>
</tr>
<tr>
<td></td>
<td>• Observations reflect conditions at the site.</td>
</tr>
<tr>
<td></td>
<td>• Portable (can be used for off-campus activities).</td>
</tr>
<tr>
<td></td>
<td>$300 – 5000 (AUD)</td>
</tr>
</tbody>
</table>

| **Method 5 – Observations from a school weather station** | |
| 1. Measure or calculate WBGT from local data (ambient temperature, humidity, solar radiation and airflow) collected via a weather station set up according to manufacturer specifications. | |
| | • True WBGT (measures air temperature, humidity, solar radiation and airflow). |
| | • Curriculum applications (e.g. science or geography). |
| | • Fixed location - Cannot be used for off campus activities. |
| | • Must be calibrated regularly to maintain accuracy. |
| | $1000 – 10000 (AUD) |

**Conclusion**

Recent research highlights that when ambient temperature is $\leq 38^\circ$C, the thermoregulatory capabilities of children are not inferior to adults, despite physiological (sweating response) and anatomical (BSA/M ratio) differences. An ability to make appropriate decisions to protect the health and safety of children, adolescents and adults during school activities involving physical activity is necessary. If schools make decisions that are not supported by evidence aligned with guidelines, they could be limiting opportunities for physical activity through unnecessary cancellation, or risk the health and safety of all parties by not offering appropriate provisions or making necessary modifications in line with the level of risk. This paper has outlined five possible methods for collecting data to support evidence based practices for children, adolescents and adults at the school level. These methods should be carefully reviewed to determine the most appropriate actions for specific school contexts in order to prevent physical activity induced heat illness.
References


Preventing physical activity induced heat illness in school settings


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SECTION 3:

Lifestyle Enhancement
The role of extreme sports in lifestyle enhancement and wellness

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Abstract

Alternative sports are fast becoming the physical activity of choice. Participation rates are even outstripping more traditional activities such as golf. At their most extreme there is no second chance, the most likely outcome of a mismanaged error or accident is death. At this level participants enjoy activities such as B.A.S.E. (Buildings, Antennae, Space, Earth) jumping, big wave surfing, waterfall kayaking, extreme skiing, rope-free climbing and extreme mountaineering. Probably the most common explanation for participation in extreme sports is the notion that participation is just a matter of some people’s need to take unnecessary risks. This study reports on findings that indicate a more positive experience. A phenomenological method was used via unstructured interviews with 15 extreme sports participants (ages 30 – 72 years) and other firsthand accounts. Extreme sport participants directly related their experience to personal transformations that spill over to life in general. Athletes report feelings of deep psychological wellbeing and meaningfulness. The extreme sport experience enables a participant to break through personal barriers and develop an understanding of their own resourcefulness and emotional, cognitive, physical and spiritual capabilities. Furthermore such a breakthrough also seems to trigger a change in personal philosophy or view on life. The extreme sport experience transforms a participant though not in terms of working towards an external (social or cultural) perception of identity or towards some constructed perception of an ideal self, but by touching something within.

Keywords: Extreme sports, Life enhancement, Wellbeing, Transformation

Introduction

Extreme sports are enjoying incredible popularity whilst more traditional sports ‘struggle to retain members’ (Pain & Pain, 2005, S33). Over the past two decades, participation rates in these sports have grown exponentially. Between 1998 and 2001 participation rates in extreme sports far outstripped any other sporting activity (American Sports Data, 2002). According to Puchan (2004) involvement has:

been shown not to be just a ‘flash in the pan’ but a sign of the times in which people are looking for a new way to define their lives and to escape from an increasingly regulated and sanitised way of living (Puchan, 2004, p. 177).

In extreme sports there is no second chance, the most likely outcome of a mismanaged error or accident is death (Brymer, 2005, 2009; Brymer & Oades, 2009). Typically, participation is considered to be about crazy people taking unnecessary risks, why else would someone willingly undertake a leisure activity where death is a real potential?
Where theories such as sensation seeking (Rossi & Cereatti, 1993; Zuckerman, 2000) have been employed to provide explanations. However, there may be more to it. This paper explores the reality that participation actually results in positive psychological changes. Further the experience of those who participate point to a clearer understanding of certain positive constructs: ‘There is a Mystery Zone out there, beyond the edge of the human world, in the back country, the empty skies and waters of the planet’ (Schultheis, 1996, foreword).

Researchers have linked stress most likely in the form of trauma, tragedy or death to dramatic positive life changes (Emmons, 1999; Maslow, 1977). Continued inducements of such experiences enhances a person’s sense of well-being (Maslow, 1996). Interestingly, after Maslow’s heart attack in 1968 he reportedly admitted that his whole life was positively transformed as he had now experienced a death of sorts. This experience removed the fear and triggered his desire to live every moment of everyday. Wong (1998, 2000) echoed such determinations and persuasively argued that by facing our own fear of death and death itself we become fully self-aware, life takes on a new, profound and positive meaning. As the intensity of the event increases so does the resulting transformation. For the resulting factors to be positive, the participants would need to expect and have a measure of control over the event (Emmons, 1999).

Those studying transpersonal experiences have also found intense personal transformations. Miller and C’de Baca (2001) describe ‘quantum’ changes or epiphanies and found that the personal characteristics resulting from such changes include humility, spirituality, personal growth and self-esteem. Braud (2001) recognised that certain experiences induce ‘other forms of consciousness, and a MORE that is both beyond and within us’ (Braud, 2001, p. 1). Such a MORE is rarely realised but is manifest as a better part of a person that is more deeply in touch with the external world and a person’s own potential (James, 1971; Oatley & Djikic, 2002). Such experiences are considered ‘white crows;’ rare but real (Braud, 2001). Rhea White (1993; 1988) categorised a number of ‘exceptional human experiences’ that trigger profound transformations through the transcendence of a previous self. Grof (1979, 1985, 1988) also observed experiences that elicit deep transformation of personal understandings and the realisation of such a ‘MORE.’

Philosophical writings from Buddhist, Hindu and Toaist traditions all note the potential of deep transformations that manifests themselves as core personality or life world changes (Hanna, 1993; Mohanty, 1972; Spiegelberg, 1982; Zaner, 1970; Zimmerman, 1986). Schulthies (1996) focussed on the similarities between what he experienced and certain descriptions presented by Zen and other traditions. He found that in many traditions transcendence and transformations are deliberately sought by approaching potentially death inducing activities (Henry, 1999). Some traumatic experiences trigger ‘a profound spiritual transformation’ (Daniels, 2002, p. 25)

Certain events that bring us nearer to the experiential reality of our own deaths are positive life changing experiences (Wong, 1998). Those studying meaning and existential psychology provide some clues as to how a change in perceptions on self-identity might come about. Theorists argue that by facing death and experiencing the potential reality of our own death we learn to live fully and authentically. May (1983) stressed the importance of true death awareness in enabling a fully lived life. For Marshall (2002), this is authentic
living obtained as a direct result of experiencing one’s core self. Preoccupation with external, social day-to-day living hinders our ability to find our own inner being and meaning. The end result of accepting the reality of our own death is that both the sense of who we are, and our relationship with others are enhanced (Wong, 2000).

Walsh (2000) also clearly identified the gap between conventional and authentic lives whilst emphasising the importance of authentic life. According to Walsh the seduction of living a socially determined, typical, superficial, trance-like, fearful and deficient life is all-pervasive in conventional culture. We deliberately deceive ourselves and remain trapped in inauthenticity. We are estranged from our authentic selves. To escape such a predicament, Walsh believes, a person must somehow break free from ‘the biggest cult of all, namely culture’ and transcend it (Walsh, 2000, p. 7).

Heidegger in his discussion on identity argued that the authentic self is already understood by each of us but is lost in a world swamped by the experiences of relating to others (Burston, 1998). The call to look inwards removes each being from this state of lostness. This is not an inwardly directed analytic dissection of an inner life but rather an experiential recognition. Once the call is answered, the authentic self is realised with a ‘worldly’ orientation (Heidegger, 1996, p. 253). Thus, the authentic self is summoned to live out its potential. A genuine being-towards-death enables the realisation of the authentic self. As Zimmerman understood, those who are more daring, who ‘catch the scent of death,’ who give up the struggle and let things be, reach a deeper fulfilment (Zimmerman, 1986, p. 250). Perhaps then the extreme sport experience, being one where death is experienced as real, triggers the call to authentic self and authentic living free from the chains of the external context. This authentic self is not an idealised or willed version of self as, say, a more macho, indestructible being that masters his or her environment (Greenberg, 1977). It is more than that; it is a self that is already part of each being and each being has its own authentic self. By listening to and honouring that authentic self, one is able to live one’s own authentic life.

This paper explores one aspect of a greater exploration into the phenomenology of extreme sports; the relationship between extreme sport participation and the enhancement of lifestyle and wellness. Participant experiences are discussed in relation to extreme sport participation and perspectives on self-understanding.

**Method**

As this paper is only part of a larger hermeneutic phenomenological exploration into the extreme sport experience this section on the methodology outlines the steps taken to explore the notion of lifestyle enhancement. The hermeneutic phenomenological perspective demands that the researcher return to the experience and explore the phenomenon through a multitude of data sources. The researcher uses interviews, biographies, poetry, video or in fact any source that might shed light on the experience in question. The findings in this study are particularly significant because the research project did not set out to link the extreme sport experience to lifestyle enhancement or wellness.
Procedure

Data was gathered from a multitude of sources including interviews, scientific manuscripts, biographies and video from the U.K., Europe, Australia, USA, India, China and Nepal. Interview participants (10 male and 5 female, age 30 to 70 years) were all extreme sport participants, as defined earlier. All data sources were outside the age group typically discussed in the literature about youth and alternative sports. Interview participants were chosen for their availability and desire to explore the experience. The extreme sports included B.A.S.E. jumping, big wave surfing, extreme skiing, waterfall kayaking, extreme mountaineering and solo rope-free climbing. Participants of alternative, lifestyle or sub-culture sports that did not fit the definition as outlined above, including surfing, skiing and so on at a level where death would be rare or non-existent or sports such as skateboarding and BMX were not included. Participants were chosen for the sake of the phenomenon (Van Kaam, 1966) and for their ability to explore the experience not for their knowledge of the phenomenological framework.

Unstructured interviews with extreme sport participants were conducted face-to-face or by phone. One question guided the interview and analysis process “what is the extreme sport experience?” Or to put it another way “how is the extreme sport experience perceived by participants?”

Interview analysis was undertaken in a variety of stages. The first stage involved listening to each tape immediately after undertaking the interview (Amlani, 1998; Ettling, 1998). The second step involved transcribing the texts. The third step involved repeatedly listening to and reading individual interviews and transcripts. The fourth stage was the thematic analysis. Each individual tape/transcript was listened to, read and thematically analysed as a separate entity though all transcripts were revisited as themes became more explicit. Both formal and non-formal understandings of potential themes were continually questioned, challenged and assessed for relevancy. Questions such as; “what is beneath the text as presented?”, “am I interpreting this text from a position of interference from theory or personal bias?”, “what am I missing?” guided the intuiting process.

Both verbal and non-verbal aspects of the interviews were considered. Interesting phrases were highlighted and any relevant non-verbal considerations were noted. Accepting Steinbock’s (1997) argument that phenomenological descriptions are not about reproducing “mere matters of fact or inner feelings” (Steinbock, 1997, p. 127), these notes were reconsidered in terms of potential underlying thematic phrases or meaning units (DeMares, 1998; Moustakas, 1994). A similar interpretation process was undertaken with video, biographies and autobiographies.

All such emerging themes were assessed to determine any potential connections. Certain initial thematic ideas were grouped and further defined. These second order themes were considered against the original transcripts to ensure the accuracy of interpretations. This whole process was repeated again and again, testing the assumptions, until interpretations seemed to gain some solidity and form. The reviews were then assessed against the words of those participating in an attempt to expose what might be a more appropriate understanding of the extreme sport experience.
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The following paragraphs use quotes to illustrate relevant themes. Where the source is a direct interview participant I have included initials only.

Results and Discussion

Reports indicate that the experience touches something deep within each participant’s being that enables an improved personal knowledge and enhanced personal capabilities. Breashears (1999) observed this inner knowledge in himself and others when reflecting on the ‘unworldly adventure’ (Breashears, 1999, p. 304) of Everest climbing:

I’ve always looked to the sky, the snow, the clouds for that light. I’ve climbed to the highest reaches of the planet in search of it. But when I looked closely into Bruce Herod’s eyes, facing his own camera lens, I saw what I might have known all along, and it is this: The risk inherent in climbing such mountains carries its own reward, deep and abiding, because it provides as profound a sense of self-knowledge as anything else on earth. A mountain is perilous, true; but it is also redemptive. Maybe I had dimly understood this as a boy, with no earthly place to call my own, I deliberately chose the iconoclast’s rocky path of mountain climbing. But in the moment of pure clarity I realized that ascending Everest had been, for me, both a personal declaration of liberty and a defiant act of escape. Now suddenly, I felt an inexpressible serenity, a full-blooded reaffirmation of life, on Everest’s icy ridges (Breashears, 1999, p. 304).

Usher (2000) when documenting the lives of free divers (those who descend to great depth without oxygen) noted that:

You are in another world, where there is no gravitational force, no colour, no noise … one does not descend in apnea to look around but to look into oneself. It is a long jump into the soul (Usher, 2000, p. 1).

Roberts (1994) concluded: ‘No wonder scaling the face of a cliff is a potent act that can penetrate to the very essence of self and help reshape it’ (Roberts, 1994, p. 4). Celsi et al. (1993) made comparisons to plastic surgery and concluded that self-change in this instance was an external, superficial process that an individual hoped would change something inside, whereas the changes involved in extreme sports result from a deep internal process. Essentially the extreme sport experience transforms a participant, though not through working towards an external (social or cultural) perception of identity or towards some constructed perception of an ideal self, but by touching something within.

The connection with a deep self in extreme sports can take the form of realising deeply felt dreams. For example Greenberg (1977) cited the example of a hang-glider who said that hang-gliding was as close as he could get to realising a life-long dream to fly like a bird. Roberts (1994) found that climbers often spoke about connections to something inside that were realised when they began climbing. Wesler (1997) quoted a climber who connected to climbing even before being aware of climbing as an activity; ‘it was something I always knew I’d do … before I knew I would do it, I didn’t even know what form it was’ (Ted cited in Welser, 1997, p. 26). Todhunter (2000) quoted an extreme climber who was adamant that...
climbing was a calling and that he was put on the earth to climb, ‘fulfilling a greater obligation’ (Todhunter, 2000, p. 172).

Those interviewed for this study also observed that from the first attempt at their chosen activity, it was as if something inside of them knew that the activity was right for them. For example SB, an extreme kayaker, experienced an affinity for water from an early age. However, whilst he tried swimming, surfing, windsurfing and other water-based activities, it was only when he discovered kayaking, and in particular kayaking down waterfalls, that something clicked inside. HS, a B.A.S.E. jumper, reported strong feelings and dreams about flying at an early age and whilst she did not attempt B.A.S.E. jumping until the age of 33, she had an instant connection to the activity, a connection she did not get with other air sports such as sky-diving or bungee jumping.

For another B.A.S.E. jumper, the connection to early dreams of flying (both day and night dreams) was all-encompassing. The first B.A.S.E. experience was reported as unlike any other experience including sky-diving, and something that was instant and pure.

It's a place that not many people in society go. Not many people hang twenty feet off a rock wall travelling at two to three hundred kilometres an hour and fly their bodies through the air. The flying thing is a big part of it, realising that childhood dream that felt really pure to me. You can go in an airplane but its man-made whereas that felt a lot more natural to me (TB, B.A.S.E. jumper, mid 30’s).

For TR, a surfer of big waves, the experience was also described as natural. The intense experiential nature of extreme sports that involves both body and feelings enables the realisation of deep inner concepts of being, as if the participant is coming home. Once the chosen activity is ‘found,’ further understandings of self are challenged. A participant initially learns about their nature through participating and extends this learning to develop better emotional and physical capabilities (Houston, 1968). It could be argued, however, that this may be less about learning something new and more connecting to a deep or core inner potential. Roberts (1994) quoted a climber who considered that ‘climbing brings you back to a primal place, where values are being created and transformed’ (Pilling cited in Roberts, 1994, p. 5).

This connection to an inner core also seems to be related to the experience of being in touch with inner knowledge during the activity (Rogers, 1996). For example, Agiewich (1998) cited a climber who considered that trusting intuition and gut feelings was essential to effective participation. Messner (1998), the first person to climb Everest solo and without oxygen, described a similar reliance on instinct. Lynn Hill (Olsen, 2001), the extreme climber, stressed the importance of listening to her inner voice, relying on her own intuition and instincts, living in the moment and remaining focused even in team-based expeditions. For Doug Scott (2003), high altitude mountaineering is all about being in touch with and listening to the inner voice, intuition or sixth sense. Tone stated that ‘you just have to follow your own line’ (Tone cited in Olsen, 2001, p. 185). Furthermore, allowing oneself to be persuaded to undertake activities that did not feel right could result in considerable misfortune. Todhunter (2000) also recognised this point when he wrote that thinking too much and not trusting his feelings negatively affected his climbing.
In an interview conducted for this research, SB, an extreme kayaker, spoke about choosing the route down a waterfall as ‘an instant gut feeling’ and RT, a big wave surfer observed that participation was dependent on gut feelings about the environment and about his own self-readiness. Soden (2003) quoted a solo climber who observed that ignoring such inner ‘feelings’ would inevitably result in death.

I think the fool is the person who ignores what their body is telling them to do. That’s the person who ends up dying. If you’re going to solo, you have to listen to your body. Listen to your heart, your mind. Your fear is the thing that keeps you alive. So it’s a good thing, if you don’t ignore it (Mike cited in Soden, 2003, p. 254).

Thus, the consensus seems to be that successful participation in extreme sports necessitates being in touch with, listening to and trusting one’s inner knowledge, one’s inner experience.

This perception is perhaps in line with the fact that most extreme sports are undertaken solo (Rosenblatt, 1999). Despite assumptions, for some practitioners even the thought of team expeditions being about social bonds is ‘an absurd opinion’ (Terray cited in Storry, 2003, p. 136). That is, at an extreme level even when part of a peer expedition, each participant is inevitably ‘alone’ and dependent on their own physical, emotional and cognitive abilities. There is little that team members can do to rescue a waterfall kayaker heading offline half way down a thirty-metre waterfall or to rescue a B.A.S.E. jumper with crossed, entangled lines heading for the cliff. Most often, the participant is required to undertake their own rescue and trust their own decisions. Thus, even when part of a team, each member is required to be fully self-sufficient and confident in their own skills (Olsen, 2001). An extreme kayaker interviewed for this study voiced the following opinion:

So many people come to me and say "god I love your lifestyle I’d love to do what you do" and ninety-nine percent of the time I can understand what they mean. But when you sit at the top of a waterfall and the horizon line is the edge of the fall you can't even see the bottom it's so high, all you can see is the clouds in the distance, that's the picture you get, and everyone has just spent the last half an hour walking down the side to sit at the bottom to pick up the pieces if you don't make it, you feel incredibly alone. There are some very strange physical situations as well at the top of the waterfall that make you feel like you are totally alone, apart from the fact that you usually are totally alone because nobody has got any interest in sitting at the top of a fall when they can't see the bottom. You are just the only person left sitting up there. As soon as you say you're ready to go everybody leaves you. Also it's very quiet up there, much quieter than people would expect because the roar of the waterfall is at the bottom and the sound can't really travel up the waterfall and back over to the top (SB, extreme kayaker, late 30’s).

Arnould and Price (1993) found that participants in their study frequently spoke about the power of solitude. Lynn Hill, the extreme climber accepted that climbing is a distinctly personal activity where each participant focuses only on the essentials and has to be continually aware of what their body is doing. Kristen Lignell, the mountaineer put it this way:
It's always a mental exercise. If it's really cold and snowing hard, you can't waste time and energy thinking about how miserable you are. You need to focus and mentally walk through what you're trying to do. You can't go moaning about the fact that there's no one to help you (Lignell cited in Olsen, 2001, p. 104).

RT, a big wave surfer was clear about the experience of being on one’s own in such an environment:

No matter who is with you in the water or watching you on the land, when you paddle into that wave you are on your own but when you fall off or break your board or swim or get held down under water or get into trouble you're on your own. You're totally responsible for yourself and you have to deal with that, so obviously if you can't or don't want to be put in that position you don't do it but it's an incredibly obvious thing that goes with that situation (RT, big wave surfer, late 40’s).

A B.A.S.E. jumper interviewed for this research described the experience in the following manner:

Mahatma Gandhi says that fearlessness is the king of all virtues and we do these things for a number of reasons but one of the most powerful reasons for me is overcoming my own personal fears. That gives you so much more of an insight into your being into your potential and into your capacity (GS, B.A.S.E. jumper, late 40’s).

He continued by reflecting on the instinctual fears of falling, separation and dying that, once confronted and transcended as opposed to avoided, allow for feelings of personal power and a type of fearlessness that comes from a better understanding of one’s inner being. Essentially for GS the relationship is akin to answering his own personal call to be himself and fulfill his own destiny. Or in other words, to discover what lies within and the realization of his own potential. Thus, it would seem the extreme sport experience presents one with an amazing gift, the gift of discovering the inner being that had previously been dormant and hidden (Ament, 2001; Niclevicz, 2003; Scott, 2003), an opportunity to become what you already are. GS had spent some time reading and exploring the experience from a scientific and mythological point of view in an attempt to investigate what he considered to be a profound medium that helped him discover his own core self.

You know you're in this incredibly spectacular environment dealing with really really primal forces, not only primal forces in the environment but primal forces within yourself. We have primitive parts of our being that are connected to primitive parts of every other being, you know, like Jung’s collective unconsciousness. We are part of everything that’s around us at some deep deep deep unconscious level, connected to it. So to go mountaineering is to reinvigorate and re-establish that connection with a really fundamental core part of your being and yourself. You have to go through 40 days in a desert, that was the metaphor of Jesus going out there, that’s what it is all about, to find that core stuff within yourself. You know that’s an irony because you really learn so much about yourself when you do any adventure sport. Particularly when you stand on the edge of a cliff knowing that if you don’t know yourself by then you might die; you get to know yourself pretty fast (GS, B.A.S.E. jumper, late 40’s).
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Returning to Breashears:

The stresses of high-altitude climbing reveal your true character; they unmask who you really are. You no longer have the social graces to hide behind, to play roles. You are the essence of what you are (Breashears, 1999, p. 247).

The idea that extreme sports promote an authentic life does not imply selfishness, but perhaps the total opposite. As Heidegger (1996) showed, it is only through living an authentic self that one can live an authentic relationship with others, a point also noted by Covey (1999) in a less philosophical recognition that a person has to be fully independent before they can be effectively interdependent. Heidegger (1996) extended the point further by suggesting that those living authentic lives encourage others to do the same.

These changes are spoken about as deep positive changes that extend into everyday life and enhance wellbeing. For example, a woman B.A.S.E. jumper put it this way:

I’ve been meditating for years and running for years so change was coming slowly you could see progress but I had explosive change in a short period of time so it was a catalyst for explosive growth (HS, B.A.S.E. jumper, early 40’s).

Bane (1996) wrote that his first extreme experience left him feeling better than he had ever felt prior to it. The feeling was so powerful that it triggered a total life transformation and a quest to re-explore the experience which would:

take me places I’ve only imagined. It will allow me to reach out and touch … something. Something desirable, something mythical (Bane, 1996, p. 5).

The experience transforms life in general. A surfing participant interviewed for this study put it this way:

That’s what I mean when I say ‘that buzz’ I mean I might die in bed. I’ll probably try and remember those things and I’ll just go ‘yes’, I’m ready to go, see you later, because nothing can upset you when you think of those things (TR, Big wave surfer, late 40’s).

TR reported that years later this experience provided the strength to get through a divorce he described as the ‘worst moments of my whole life’ (TR, Big wave surfer late 40’s).

Like I said I think it just makes you a better person makes you more content makes you realize more what life is all about and the pleasures in life (TR, Big wave surfer, late 40’s).

So it would seem that participants describe positive life changes emanating from the extreme sport experience. Participation at a level where death is a potential outcome, where the external is clearly more powerful aids learning about the internal and enhances wellness and life. EK a climber in his early seventies summarised the experience as:
just the feeling of well being because you got into situations where sometimes you were frightened when you got into dangerous positions and the greatest fascination I had from it really was controlling the fear because that's what all the climbing is all about (EK, extreme climber, early 70’s)

Summary

Participants experience being connected to a deeper sense of self already known but hidden from view by socio-cultural noise; noise that dictates who each of us ‘should’ be and how each of us ‘should’ lead our lives. The extreme sport experience strips away the socio-cultural noise and allows an individual to hear their authentic own-self. Thus, providing each keeps in contact with their own reality of death, participants can consistently realise their authentic own-self as authentic living. In Heideggerian terms ‘in order to gain everything, one must give up everything’ (Zimmerman, 1986, p. 292). One must be ready to accept and let go of the need to cling to life (Campbell, 1973; Watts, 2003). What participants are describing is an experiential acceptance of death which is a key to unlocking the real self.

This journey is in its essence a realisation of an original innate state of being that Shaner (1985) described as primordial awareness. That is, we are already what we seek; we just need to be released from representational thinking to realise what lies within (Campbell, 1973; Depraz, 2003). Such a release cannot be attained through self-reflection but must be through genuine experiential awareness (Elwood, 1994). For Campbell (1993), such an experience is necessarily brought about by a radical alteration of focus from the external to the internal world.

Arguably, such descriptions are reminiscent of the self referred to by participants as their inner essence or core, the implication being that the extreme sport experience enables a transformation that moves towards a more authentic understanding which in turn enhances life and perceptions of wellness. The extreme sports participant accepts the personal challenge to explore their inner being. The closeness to death facilitates an instant window into each participant’s inner being. It would seem that the extreme sport experience might be the outward expression of a participant’s inner being, an expression which enables a deeper understanding of a participant’s core or authentic self. Thus, extreme sports can be the key both to releasing one’s deeply felt dreams and to becoming more aware of one’s core-self, perhaps akin to the Heideggerian call to realising and living one’s authentic self. By searching out, accepting and honouring that call, participants gain insights to the deeper personal and interpersonal realms and a key to lifestyle enhancement and wellness.

References


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Ecological perspectives and wellness

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Abstract
Since the industrial revolution, the development of a lifestyle lived predominantly indoors has resulted in less contact with nature. Research over the last twenty years has gradually been identifying the human health benefits attributed to re-connecting with the natural environment. The significance of feeling connected to natural environments, families and friends are described as a foundational requirement for human health and wellbeing (Maller et al., 2008). Also, the early findings of Schultz’s (2002) work indicated that by feeling connected to the natural world a person is more likely to be committed to positively interact with and protect the natural world. Research on young people has indicated that young people are even more disconnected from the natural world. Leading some writers to call this disconnection a crisis termed “Nature Deficit Disorder.” Participants (n = 131) from 1st year university Physical Education and Human Movement Studies were asked to complete two questionnaires the Connectedness to Nature scale (CNS) (Mayer & Frantz, 2004) and the New Ecological Paradigm Scale (NEP) (Dunlap, Van Liere, Mertig, & Jones, 2000). The NEP and CNS are two scales most commonly used to explore beliefs and feelings of connectedness to the natural world (Schultz, 2002). The NEP was developed over thirty years ago by Dunlap and Van Liere (1978) and originally termed the New Environmental Paradigm. The NEP is now the foremost International tool for measuring beliefs about the natural world (Dunlap, 2008). The CNS measures an individual’s trait levels of emotional connection to the natural world. It is a relatively new tool for understanding ecological behaviour based on ecopsychology theory and employed to predict behaviour (Mayer and Frantz, 2004). Both questionnaires are based on a 1-5 scale (Strongly disagree to Strongly agree). By combing both scales the researchers aim to develop a snap shot of beliefs and emotional feelings towards the natural world and therefore an idea of intended behaviour. The two questionnaires were combined as one online survey with additional material asking for demographics and self assessments of type of leader included before the surveys. An email inviting outdoor leaders to participate was sent out to networks and interest groups. A basic descriptive statistical analysis was used to interpret data.

Keywords: Nature deficit disorder, Natural world, Wellness

Introduction

“Send your children out to renew themselves; send them to regain in the open field the strength lost in the foul air of our crowded cities”

(Rousseau, 1968, p. 21, from the original works 1762)
Since the industrial revolution, the development of a lifestyle lived predominantly indoors has resulted in less contact with the natural. In the USA this equates to less than five minutes of free-time spent outdoors (Schultz, 2002). The Australian Bureau of Statistics (ABS, 2006) found comparable results for Australia with less than 19 minutes spent outdoors. Most free time is spent in doors with the major recreational activity being audio-visual media (ABS, 2006). Explanations for this trend include the fact that as humanity has become more educated, work has become more indoor-oriented and living more sub-urban. As a result humanity has become more human centric, also termed anthropocentric, in focus. Hidden within these statistics is the fact that many people report that they spend little to no time out-of-doors and that women spend less time outside than men.

Research focusing on young people has indicated that young people are even more disconnected from the natural world (Rydberg, 2007). Leading some writers to call this disconnection a crisis termed “Nature Deficit Disorder.” Young people spend more time indoors connected to electronic outlets than they do out-of-doors. This trend of decreased time outdoors is continuing. Between 1997 and 2003 the proportion of 9-12 year olds who spent time playing outside declined by 50 percent (St George, 2007).

The role of the Natural world in Wellness

The Western philosophical discipline has long recognised the positive relationship between perceptions of wellness and feelings of connection to the Natural World (Dewey, 1958; Warrawee’a, 2002). Over the last twenty years researchers have gradually been identifying the human health benefits attributed to re-connecting with the natural environment. The significance of feeling connected to natural environments, families and friends are described as a foundational requirement for human health and wellbeing (Maller et al., 2008). Leading some researchers to recognise that environmental wellness should be considered an essential element of wellness research (Callicot, 1996). In essence then the more a person feels disconnected from the natural world the less likely s/he will be functionally well.

Also, the early findings of Schultz’s (2002) work indicated that experiences of disconnection from the natural world means that a person is less likely to be committed to positively interact with and protect the natural world.

Caring for the Natural World

Sustainability has become more than a system of resource management (Gifford, 2007; Vlek & Steg, 2007). Gifford (2007) argued that any real change in sustainable practice will most likely happen at an individual level, through changes in attitudes and everyday behaviour. For this change to happen, an individual will need to feel connected to the natural world (Dunbar, 2004; Schroll, 2007).

From this ecocentric perspective, the natural world is not separate from humanity; it is at the very core of humanity. Human beings can only really understand themselves by being engulfed in the natural world (Bourgeois, 2002). As much as we try, humanity cannot be separated from nature (Tymieniecka, 1988).
Schultz (2002) argues that by accepting this condition and returning to nature, experientially recognising that we are interconnected to nature, we will rekindle values that lead to caring and the commitment to look after the environment. If a people feel psychologically connected to the natural world, they willingly make sacrifices in accord with sustainable practices (Mathews, 2006).

Feelings of connection, unity or being a part of the natural world are a causal step to emotional care and behavioural commitment, to wanting to protect the natural world, to being willing to endure sacrifice in order to look after the natural world. A person will only undertake sustainable practices out of commitment to look after the natural world when he or she feels connected to, or part of the natural world (Schultz, 2002).

In summary, theoretical perspectives indicate that feelings of connection to the natural world are essential for holistic experiences of wellness. In turn these experiences trigger a desire to protect the natural world which one would assume leads to greater feelings of wellness. However, theory also suggests that young people are more disconnected from the natural world. In this paper we report on a pilot study exploring the attitudes and feelings of connection to the natural world.

**Research Methodology**

**Participants**

Participants in this study were health and Physical Education students from Queensland University of Technology, Brisbane (n=131). Participants were asked to volunteer for the study, via an email informing them of the study outline and requirements. The survey was completed anonymously and online. Participants were also asked for demographic information.

**Instruments**

Participants were asked to complete two questionnaires: the Connectedness to Nature scale (CNS) (Mayer & Frantz, 2004) and the New Ecological Paradigm Scale (NEP) (Dunlap, Van Liere, Mertig, & Jones, 2000).

The NEP and CNS are two scales most commonly used to explore beliefs and feelings of connectedness to the natural world (Schultz, 2002). The NEP was developed over thirty years ago by Dunlap and Van Liere (1978) and originally termed the New Environmental Paradigm. The NEP is now the foremost International tool for measuring beliefs about the natural world (Dunlap, 2008). The CNS measures an individual’s trait levels of emotional connection to the natural world. It is a relatively new tool for understanding ecological behaviour based on ecopsychology theory and employed to predict behaviour (Mayer and Frantz, 2004). Both questionnaires are based on a 1-5 scale (Strongly disagree to Strongly agree). By combing both scales the researchers aim to develop a snap shot of beliefs and emotional feelings towards the natural world and therefore an idea of intended behaviour and potential feelings of wellness. The three questionnaires were combined as one online survey with additional material asking for demographics included before the surveys. A basic descriptive statistical analysis was used to interpret data.
**Results**

The following section outlines a descriptive analysis of the findings. The questions were asked on a scale 1-5 where 1 = Strongly Agree, 2 = Agree, 3 = neutral, 4 = disagree and 5 = strongly disagree.

One hundred and thirty one surveys (male n= 48, female n=83) were completed (see table 1 for demographic information).

**Table 1** Descriptive statistics about the participants

<table>
<thead>
<tr>
<th>Total Participants</th>
<th>131</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>83</td>
</tr>
<tr>
<td>Females</td>
<td>48</td>
</tr>
<tr>
<td><strong>Average Age</strong></td>
<td>20.2 (5.5)</td>
</tr>
</tbody>
</table>

Results from both the NEP and CNS (see **Table 2 & 3**) demonstrated that students in this study held neutral attitudes and beliefs about the natural world and whilst they did not feel strongly positively emotionally connected to the natural world they did feel a slightly stronger than neutral connection.

*New Ecological Paradigm Scale*

Participant response on the NEP scale averaged 2.82 indicating a slightly ecocentric set of attitudes and beliefs. The average participant response for the category Human Dominion over Nature was 3.32 indicating a slight disagreement with the statement, that is Human’s do not have dominion over nature. For the second category, Human Exemptionalism participants averaged score of 3.04 indicting a neutral attitude to this statement. The average participant score for the perceptions about Balance of Nature (2.17) indicated a slight acceptance that natures balance is delicate and can be set off-course by human intervention. For the category exploring the risk of Ecocrisis participants averaged 3.09 which indicates a slight disagreement with the statement and that the eco crisis is perhaps exaggerated. In the last category ‘Limits to Growth’ participants, on average, indicated that the earth resources are limited, however, participants also thought that humanity can learn to farm the resources more effectively.
Table 2 Results from New Ecological Paradigm Scale

<table>
<thead>
<tr>
<th>Central Aspects</th>
<th>Mean/5</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human Domination over Nature</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humans have the right to modify the natural environment to suit their needs</td>
<td>3.40</td>
<td>1.06</td>
</tr>
<tr>
<td>Plants and animals have as much right as humans to exist</td>
<td>1.76</td>
<td>0.78</td>
</tr>
<tr>
<td>Humans were meant to rule over the rest of nature</td>
<td>3.31</td>
<td>1.26</td>
</tr>
<tr>
<td><strong>Average adjusted for negatively worded questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.32</td>
<td></td>
</tr>
<tr>
<td><strong>Human Exemptionalism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human ingenuity will insure that we do NOT make the earth unliveable</td>
<td>2.94</td>
<td>0.87</td>
</tr>
<tr>
<td>Despite our special abilities humans are still subject to the laws of nature</td>
<td>1.90</td>
<td>0.71</td>
</tr>
<tr>
<td>Humans will eventually learn enough about how nature works to be able to control it</td>
<td>3.08</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Average adjusted for negatively worded questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.04</td>
<td></td>
</tr>
<tr>
<td><strong>Balance of Nature</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When humans interfere with nature it often produces disastrous consequences</td>
<td>2.23</td>
<td>0.85</td>
</tr>
<tr>
<td>The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>3.63</td>
<td>0.90</td>
</tr>
<tr>
<td>The balance of nature is very delicate and easily upset</td>
<td>2.13</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>Average adjusted for negatively worded questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.17</td>
<td></td>
</tr>
<tr>
<td><strong>The Risk of Ecocrisis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humans are severely abusing the environment</td>
<td>1.92</td>
<td>0.76</td>
</tr>
<tr>
<td>The so-called ‘ecological crisis’ facing humankind has been greatly exaggerated</td>
<td>3.39</td>
<td>1.00</td>
</tr>
<tr>
<td>If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>2.21</td>
<td>0.78</td>
</tr>
<tr>
<td><strong>Average adjusted for negatively worded questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.09</td>
<td></td>
</tr>
<tr>
<td><strong>Limits to Growth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We are approaching the limit of the number of people the earth can support</td>
<td>2.71</td>
<td>0.97</td>
</tr>
<tr>
<td>The earth has plenty of natural resources if we just learn how to develop them</td>
<td>2.27</td>
<td>0.92</td>
</tr>
<tr>
<td>The earth is like a spaceship with very limited room and resources</td>
<td>2.85</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Average adjusted for negatively worded questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.47</td>
<td></td>
</tr>
<tr>
<td><strong>Average Score (adjusted for positive/ negative questions)</strong></td>
<td>2.82</td>
<td></td>
</tr>
</tbody>
</table>
**Connectedness to Nature Scale**

Result from the connectedness to Nature scale indicate a slightly stronger than neutral feeling of connection to the natural world.

**Table 3 Results from Connectedness to Nature Scale**

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean/ 5</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I often feel a sense of oneness with the natural world around me</td>
<td>2.50</td>
<td>0.77</td>
</tr>
<tr>
<td>2. I think of the natural world as a community to which I belong</td>
<td>2.25</td>
<td>0.78</td>
</tr>
<tr>
<td>3. I recognize and appreciate the intelligence of other living organisms</td>
<td>1.78</td>
<td>0.69</td>
</tr>
<tr>
<td>4. I often feel disconnected from nature</td>
<td>3.43</td>
<td>0.88</td>
</tr>
<tr>
<td>5. When I think of my life, I imagine myself to be part of a larger cyclical process of living</td>
<td>2.42</td>
<td>0.91</td>
</tr>
<tr>
<td>6. I often feel a kinship with animals and plants</td>
<td>2.62</td>
<td>0.96</td>
</tr>
<tr>
<td>7. I feel as though I belong to the Earth as equally as it belongs to me</td>
<td>2.63</td>
<td>0.93</td>
</tr>
<tr>
<td>8. I have a deep understanding of how my actions affect the natural world</td>
<td>2.15</td>
<td>0.74</td>
</tr>
<tr>
<td>9. I often feel part of the web of life</td>
<td>2.54</td>
<td>0.81</td>
</tr>
<tr>
<td>10. I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’</td>
<td>2.37</td>
<td>0.90</td>
</tr>
<tr>
<td>11. Like a tree can be part of a forest, I feel embedded within the broader natural world</td>
<td>2.56</td>
<td>0.77</td>
</tr>
<tr>
<td>12. When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature</td>
<td>2.69</td>
<td>0.94</td>
</tr>
<tr>
<td>13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees</td>
<td>2.89</td>
<td>1.08</td>
</tr>
<tr>
<td>14. My personal welfare is independent of the welfare of the natural world</td>
<td>2.87</td>
<td>0.99</td>
</tr>
</tbody>
</table>

*Average scores (adjusted for positive/negative questions) 2.34*
Discussion

As outlined in the introduction having positive attitudes and beliefs about the natural world has been theoretically linked to positive holistic wellness. Feeling connected to natural is one of the environments essential requirements for human health and wellbeing (Maller et al., 2008). On the other hand disconnection from the natural world has been linked with feelings of un-wellness and the more a person feels disconnected from the natural world the less likely s/he will be functionally well.

Whereas current research has indicated that young people are disconnected from the natural world and therefore unable to be fully functionally well, results from this paper indicate a more neutral perspective. Results from this study show that students have a tendency towards and ecocentric perspective and see humanity as part of a greater whole. Perhaps suggesting that far from a concern of ‘Nature Deficit Disorder’ there is a window of opportunity for persuasion. With regards to holistic wellness, results from this study indicate that if the theoretical perspective is correct then students would not be fully well. However, this is a theoretical jump and as yet no research has measured this. This is the next stage of our research.

Another theoretical perspective on feeling connected to the natural is that it is a causal step to wanting to undertaking sustainable practices (Brymer, Downey, & Gray, 2009). A person will only out of commitment to look after the natural world when he or she feels connected to, or part of the natural world (Schultz, 2002). Results from this study indicate that as participants are generally overall neutral towards the natural world then, in theory, they will be less willing to make sacrifices for the sake of sustainability. However, once again perhaps there is a window open for persuasion.

Limitations

Limitations to this study include the fact that participants may only have undertaken the survey if they originally felt some feeling towards the natural world, even if this was only an ambiguous feeling. Also we have not considered the differences between male and female response and this might bring up gender differences.

Summary

Research focusing on wellness and the role of the natural world indicates that the natural world is essential for holistic feelings and experiences of wellness. Research on the relationship between the natural world and humanity indicates that positive beliefs and feelings of connectedness have a strong correlation to the desire to care for the natural world. In today’s climate where individuals are becoming more and more separated from the natural world as education encourages more inside work this would indicate individual un-wellness. The preliminary findings from this project show that students are on average neutrally oriented to the natural world. From a theoretical perspective this would indicate that participants are not holistically well and that they do not go out of their way to practice sustainability. The next stage is to explore the link between wellness and feelings of connection to the natural world.
References


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Changes in satisfaction with physical education and intrinsic sport motivation as a function of chronic stress experiences in physical education classes

Markus Gerber
University of Basel, Switzerland

Abstract

A primary goal of PE is to promote positive attitudes towards physical activity and physically active lifestyles among young people. However, PE enjoyment and intrinsic motivation gradually decrease during adolescence. Also, studies point to alarmingly high absence rates in PE. As previous research demonstrates, negative experiences in PE may result in youth sport withdrawal. This study was intended to evaluate whether changes in motivation and PE satisfaction could be predicted by the amount of stressful experiences in PE during the past eight months. A psychometrically sound instrument was created to assess chronic stress in PE classes. To do so, an open-ended questionnaire was first administered to a sample of 302 6th to 9th grade students (M=13.36±1.42 years) asking about their three minor and major stressful events experienced in PE during the preceding three months. The responses were then grouped into various stressor categories by means of a content analysis. Based on the student quotes, four items were created to represent each subscale resulting in a 68-item inventory, which was filled in by the same sample of students. Exploratory and confirmatory factor analyses point to the internal construct validity of the instrument. Likewise, evidence found for the external validity and the test-retest reliability was convincing. To examine the predictive power of the instrument, the students answered the questionnaire again eight months later. Hierarchical regression analyses show that chronic stress experiences explained considerable portions of variance in motivation and PE satisfaction, even after controlling for baseline scores. Stress negatively affected intrinsic motivation and contributed to reduced levels of PE satisfaction. This study shows that stressful experiences in PE such as problems with the teacher or classmates, psychological and physical violence, pain during or after PE lessons, poor organization and set-up of PE classes, low perceived ability or consistent feelings of failure impede positive attitudes towards physical activity and PE. The findings provide an indication, which factors may be considered most central to avoid negative experiences in the gym.

Keywords: Motivation, Physical education, Satisfaction, Stress

Introduction

Many students all over the world consider physical education (PE) as one of their favorite school subjects. Parents, school principals and politicians generally expect that PE makes a substantial contribution to the physical, social and cognitive development of
adolescents (see Pühse & Gerber, 2005). Particularly, it is argued that PE plays a fundamental role in developing active live-styles because it is compulsory, takes place on regular terms and is taught by professionals who have experienced specific training (Biddle & Chatzisarantis, 1999). By promoting leisure time physical activity, it is assumed that PE has the potential to counteract social problems such as the increasing prevalence of obesity (Sallis & McKenzie, 1991) or stress (Kleine, 1994).

In turn, several studies show that the level of leisure time physical activity decreases rapidly after the age of twelve (Caspersen, Pereira, & Curran, 2000). Qualitative research further indicates that negative experiences in PE can lead to youth sport withdrawal (e.g. Coakley & White, 1992). Furthermore, worrying rates of PE absenteeism are reported in some European countries (e.g. Annerstedt, 2005). Similarly, satisfaction with PE substantially decreases during the course of elementary school (Nitsch & Singer, 2001). In addition, past research has shown that around ten percent of students report very low motivation to engage actively in PE (Ntoumanis, 2002). Taken together, these findings raise the issue why some students sense a strong dislike for PE.

In recent years, PE research has tried to tackle this question by analyzing differences in teaching styles (Byra, 2000) and, particularly, motivational climate. In sum, convincing evidence from cross-sectional (e.g. Escarti & Gutiérrez, 2001) and (quasi-)experimental studies (e.g. Jaakola & Liukkonen, 2006) exists that an autonomy supportive environment positively influences autonomy, competence, relatedness and may boost motivation in the gym. Although there is no doubt that achievement goal theory (Nicholls, 1989) and self-determination theory (Deci & Ryan, 1985) have made important contributions to the current understanding of motivational processes in PE, it is important to note that these theories have put an almost exclusive emphasis on how teachers approach achievement situations. However, other factors than motivational climate may generate negative and stressful experiences in PE as well.

**Objectives**

The purpose of this study was to find out which experiences students generally perceive as stressful in PE classes. Based on students’ quotes, a quantitative instrument was developed to assess chronic stress experiences in PE. The present paper explores to what extent different stressors predict PE satisfaction and, as a more general indicator, intrinsic sport motivation over a period of eight months.

**Method**

A psychometrically sound instrument was created to assess chronic stress in PE classes. To do so, an open-ended questionnaire was first administered to a sample of 302 6th to 9th grade students (M=13.36±1.42 years) asking them about three minor and major stressful events experienced in PE during the preceding three months (cp. Compas, Davis, Forsythe, & Wagner, 1987). The responses were then grouped into various stressor categories by means of a content analysis. In sum, 17 possible sources of distress were identified. Four dimensions were closely associated with the student-teacher relationship.
These were labelled as (1) unfair teacher, (2) unfriendly teacher, (3) autocratic teacher, and (4) arguments with the PE teacher. Five dimensions centered on student-student relationships. These dimensions were entitled (5) low effort of classmates, (6) aggressive behavior of classmates, (7) poor class cohesion, (8) psychological violence, (9) physical violence, and (10) negative experiences in the locker room. Three dimensions were linked to organizational aspects of PE and embraced stressors such as (11) poor PE structures (e.g. poor infrastructure, inconvenient schedule times), (12) poor organization of the PE lessons, (13) perceived boredom in PE, and (14) obligation to take part in PE. Finally, three dimensions referred to negative cognitive and somatic experiences in PE such as (15) pain during/after PE, (16) low ability compared to classmates, and (17) unachievable expectancies. Based on the student responses and following the principles of a well-accepted stress inventory (TICS: Schulz, Schlotz, & Becker, 2003), four items were created to represent each subscale resulting in a 68-item instrument. All items were formulated in a way that includes the stressfulness of each experience (e.g. “The PE teacher is too strict.”). Furthermore, all items were phrased as unspecific as possible to enclose a wide range of different situations and experiences (e.g. “The PE teacher does not respect the students enough.”). In turn, no particular sport activities that the students disliked were included in the original version of the inventory (e.g. “I had to dance/play soccer.”). It was generally expected that this procedure would result in an acceptable internal consistency of the subscales. The stress inventory was filled in by the same sample of students three weeks later. To examine the internal validity of the instrument, exploratory and confirmatory factor analyses were performed using principal components analysis and structural equation modeling (AMOS 5.0). To test its external validity, correlations with other constructs such as PE satisfaction, class climate in PE and sport motivation were calculated. To obtain information about the test-retest-reliability, a subsample of n=124 students filled in the stress inventory again three weeks after the first completion of the questionnaire. Moreover, another subsample of n=64 students rated the stressfulness of the items. Finally, to examine the predictive power of the instrument, the students answered the complete questionnaire again after an eight months interval.

Results

All items were generated from the students’ responses. Although most of the items had to be reformulated to meet the tenets of the TICS, this procedure guaranteed high face/content validity. The students themselves taxed all items sufficiently stressful.

Exploratory and confirmatory factor analyses point to the internal construct validity of the instrument. A principal components analysis initially provided a 14-factor solution (Eigenvalues > 1). Four factors were excluded since less than three items loaded on the factors (≥.40). Table 1 shows the remaining ten dimensions (based on the t1-data). Factor correlations provided evidence for the internal convergent/discriminant validity as all subscales of the inventory were interrelated in the expected way (r=.12 to .69, p<.01). Figure 1 shows the results of the second-order confirmatory factor analysis (CFA) based on the data collected after eight months. As hypothesized, three second-order-factors were distinguished representing teacher- and school-related, classmate-related and performance-related stress. A
causal structure is not posited in the model. However, the model indicates that all second-order factors were correlated and that they were sufficiently explained by the first-order constructs. The fit indices show that the model worked well ($\text{Chi}^2/\text{df}=2.31; \text{RMSEA}=0.07; \text{Pclose}=0.00; \text{CFI}=0.81$), particularly if the residual correlations were taken into account ($\text{Chi}^2/\text{df}=1.66; \text{RMSEA}=0.05; \text{Pclose}=0.78; \text{CFI}=0.91$). As can be seen in Figure 1, all factor loadings and regression weights were above .50.

**Table 1** Exemplary items, explained variance (EV in %) and internal consistency (IV: Cronbach’s Alpha) of the ten extracted factors

<table>
<thead>
<tr>
<th>Label</th>
<th>Exemplary items</th>
<th>EV</th>
<th>IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Problems with the PE teacher</td>
<td>(a) “My PE teacher and I have serious disagreements.” (b) “My PE teacher does not treat me as I would expect to be treated by a good PE teacher.”</td>
<td>26.83</td>
</tr>
<tr>
<td>2</td>
<td>Problems with classmates</td>
<td>(a) “In PE, other students do lots of stupid things.” (b) “When playing games, other students treat me unfairly.”</td>
<td>9.64</td>
</tr>
<tr>
<td>3</td>
<td>PE organization</td>
<td>(a) “I am bored in PE.” (b) “PE cannot be fun if it is organized as it is in my lessons.”</td>
<td>5.75</td>
</tr>
<tr>
<td>4</td>
<td>Psychological violence</td>
<td>(a) “In PE, other students tease or laugh at me.” (b) “In the locker room, I am exposed to unpleasant situations.”</td>
<td>4.51</td>
</tr>
<tr>
<td>5</td>
<td>Pain during/after PE</td>
<td>(a) “I am in pain during PE lessons.” (b) “My body is aching after PE classes.”</td>
<td>3.11</td>
</tr>
<tr>
<td>6</td>
<td>PE structures</td>
<td>(a) “Under the present conditions (i.e. time, equipment, sport facilities), good PE is not possible.” (b) “The present conditions do not allow good PE.”</td>
<td>2.87</td>
</tr>
<tr>
<td>7</td>
<td>Physical violence</td>
<td>(a) “In PE, other students push me around.” (b) “In PE, other students beat me.”</td>
<td>2.58</td>
</tr>
<tr>
<td>8</td>
<td>Low ability</td>
<td>(a) “In PE, I have much lower ability than other students.” (b) “In PE, other students perform much better than I do.”</td>
<td>2.23</td>
</tr>
<tr>
<td>9</td>
<td>Obligation to participate</td>
<td>(a) “I have to take part in PE despite feeling uncomfortable.” (b) “In PE, I have to do things that I don’t want to do.”</td>
<td>2.10</td>
</tr>
<tr>
<td>10</td>
<td>Failure/frustration</td>
<td>(a) “In PE, I get frustrated because I can’t do things as good as others expect me to do.” (b) “In PE, I am afraid that I am doing things wrong or that I am not good enough.”</td>
<td>2.03</td>
</tr>
</tbody>
</table>
Correlational analyses support the external convergent validity of the subscales. All factors (except physical and psychological violence) were linked to the teaching quality scale of the LFSK 4-8 (Eder & Mayr, 2000), a validated instrument to assess class climate ($r=-.17$ to -.67, $p<.01$). Correlational analyses further support the criterion validity of the subscales. For instance, nine of ten factors (except physical violence) were negatively associated with PE satisfaction at t1 ($r=-.17$ to -.59, $p<.01$). As Table 1 shows, all factors had acceptable internal consistency with alpha coefficients close to or above .70. All item-total correlations were higher than .40. Finally, all factors had an acceptable temporal stability over the three-week period ($r=.49$ to .68, $p<.01$).

To test the predictive power of the instrument, three-stage hierarchical regression analyses were performed separately for each of the two criterion measures: (i) PE satisfaction and (ii) intrinsic sport motivation. The first instrument included five items such as “I like PE lessons.” (1=“not at all true” to 5=“very true”; $\alpha=0.87$ and 0.89 for t1 and t2). To assess intrinsic sport motivation, students were asked about the reasons why they (would) participate in sport (e.g. “Because it is fun.”; 1=“not at all true” to 6=“very true”; $\alpha=0.79$ and 0.84 for t1 and t2) (Seelig & Fuchs, 2006). In a first step, the influence of age and gender was controlled. In the second step, the initial level of PE satisfaction/intrinsic sport motivation was included into the regression equation. In the final step, the baseline stress level and the change in stress (stress at t2 minus stress at t1) were added to the regression model. The results reported in Table 2 include the adjusted multiple correlation coefficient squared ($R^2$ after step 3), changes in $R^2$ from step 2 to step 3 ($\Delta R^2$) and the standardized Beta-weights ($\beta$. 

**Figure 1** Second-order-factor model with standardized coefficients
after step 3). As Table 2 points out, almost all stressors contributed to a significant $R^2$ increment. To provide an example, we may see that as problems with the PE teacher are concerned (first column), PE satisfaction at t2 did not depend on students’ age and gender. Expectedly, the initial level of PE satisfaction significantly predicted scores obtained after eight months. Most importantly, however, the original stress level and increases in stress resulted in decreased PE satisfaction eight months later. The amount of explained variance varied from 1 to 5 percent. As indicated in Table 3, poor organization of PE classes caused the highest $R^2$ increment. Finally, stressful experiences in PE not only affected PE satisfaction, but also caused a decrease in intrinsic sport motivation over time. With regard to sport motivation, eight of ten stressors resulted in a significant increment in $R^2$.

**Table 2** Summary of hierarchical analyses for variables predicting PE satisfaction and intrinsic sport motivation (separately for all stressors)

<table>
<thead>
<tr>
<th>PE satisfaction (at t2)</th>
<th>PTE</th>
<th>ORG</th>
<th>STR</th>
<th>OBL</th>
<th>PCM</th>
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$a$p < 0.001, $b$p < 0.01, $c$p < 0.05

First-order factors: PTE=problems with the PE teacher, ORG=organization of PE lessons, STR=PE structures, OBL=obligation to participate in PE, PCM=problems with classmates, PSV=psychological violence, PHV=physical violence, PAI=pain during/after PE, LAB=low ability, FAI=failure/frustration.
Changes in satisfaction with physical education and intrinsic sport motivation

Second-order factors: TSS=teacher- and school-related stress, CMS=classmate-related stress, PES=performance-related stress (second order factors were obtained by averaging the subdimensions’ mean scores).

Discussion

The findings of the present study highlight that a multitude of different sources cause stressful experiences in PE. Confirmatory factor analyses document that stressors are related to the PE teacher, the school, classmates and performance. The findings also show that students differentiate less between different aspects of teacher- and classmate-related problems than expected. Accordingly, some subdimensions were aggregated into more general factors. In sum, the present inventory has high face validity and indicates good internal consistency. Furthermore, correlational analyses confirm its construct validity. Longitudinal analyses support the predictive power of the inventory and its usefulness as a tool to improve the quality of PE. Finally, hierarchical regression analyses show that stressful experiences in PE do not only undermine PE satisfaction, but also affect more general intrinsic sport motivation.

References


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Wellness as higher education curriculum: A comprehensive framework for health education and promotion.

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Queensland University of Technology, Australia.

Abstract

A number of studies in relation to the place, impact and purpose of Wellness curricula provide insight into the perceived benefits of Wellness education in university environments. Of particular note is the recommendation by many authors that curriculum design fosters personal experiences, reflective practice and active self-managed learning approaches in order to legitimise (give permission for) the adoption of wellness as a personal lifestyle approach in the frenetic pace of student life. From a broader educational perspective, Wellness education provides opportunities for students to engage in learning self regulation skills both within and beyond the context of the Wellness construct. To realise the suggested potential of Wellness education in higher learning, it is necessary that curricula overlay the principles from the domains of both self-regulation and Wellness, to highlight authentic learning as a means to lifelong approaches. Currently, however, systematic development and empirical examination of the Wellness construct have received limited academic investigation. Despite having a multitude of intended purposes from the educative to the therapy oriented goals of the original authors, most wellness models appear to be limited to the “what” of Wellness. Investigations of the “how” and “why” aspects of Wellness may serve to enhance currently existing models by incorporating behaviour modification and learning approaches in order to create more comprehensive frameworks for health education and promotion. It is also important to note that none of the current Wellness models actually address the educative framework necessary for an individual to learn and thus become aware or understand and make choices about their own Wellness. The literature reviewed within this paper would suggest that learner success is optimised by giving learners authentic opportunities to develop and practice self regulation strategies. Such opportunities include learning experiences that: provide options for self determined outcomes; require skills development; recognise principles of successful learning as outlined by the APA; and are scaffolded according to learner needs rather than in generic ways. Thus, configuring a learner centred curriculum in Wellness Education would potentially benefit from overlaying principles from the domains of both SRL and Wellness to highlight authentic learning as a means to lifelong approaches, triggered by undergraduate experiences. Student perceptions are a rich and significant data base for the measurement of their experiences, activities, practices and behaviours. Wellness undergraduate education, such as the “Fitness, Health and Wellness” unit offered by Queensland University of Technology, offers a context in which to confirm possibilities suggested by the literature reviewed in this paper in a practical, Australian context.

Keywords: Wellness, Curriculum, Higher education
Introduction

From its infancy in the 1960’s, the concept of wellness has continued to develop as a construct that is linked, yet not synonymous with health. Multiple definitions and models relating to wellness have been developed during this time; in addition to the construct of psychological wellbeing, which can be seen as being embedded in the wellness construct. Within Wellness literature, a number of recurrent assumptions are evident including wellness as a multidimensional construct, balance and integration as critical to overall wellness; and the dynamic and incremental nature of wellness for individuals. Paradigmatically, the Wellness construct differs from Health. Specifically, Wellness stems from a salutogenic/fortigenic (strengths-based) perspective whilst Health continues to be framed, practiced and studied from pathogenic perspectives.

A number of studies in relation to the place, impact and purpose of Wellness curricula provide insight into the perceived benefits of Wellness education in university environments. Of particular note is the recommendation by many authors that curriculum design fosters personal experiences, reflective practice and active self-managed learning approaches in order to legitimise (give permission for) the adoption of wellness as a personal lifestyle approach in the frenetic pace of student life. From a broader educational perspective, Wellness education provides opportunities for students to engage in learning self-regulation skills both within and beyond the context of the Wellness construct.

Self-regulation has been linked to effective learning by numerous researchers and theorists. The significance of self regulation is identified by Bandura (2005) in association with the acquisition of knowledge and skills, the achievement of potential and the level of progress in self development. In particular, Bandura notes that “Weak self-regulators do not achieve much progress in self development”, which, considering the self development theme running through Wellness education, has significant implications for effective Wellness curriculum design (self).

Assuming that learner success in both academic and lifestyle domains is optimised by authentic opportunities to develop and practice self regulation strategies, Wellness education can therefore be seen as having broad implications for wholistic lifestyle management outside the boundaries of formal education. Further, the stronger lifestyle preferences and increased interest in health promotion that may be associated with Wellness education provide key support for considering Wellness education curricula as a fundamental tenet in all health related disciplines.

To realise the suggested potential of Wellness education in higher learning, it is necessary that curricula overlay the principles from the domains of both self-regulation and Wellness, to highlight authentic learning as a means to lifelong approaches. Currently, however, systematic development and empirical examination of the Wellness construct have received limited academic investigation. Despite having a multitude of intended purposes from the educative to the therapy oriented goals of the original authors, most wellness models appear to be limited to the “what” of Wellness. Investigations of the “how” and “why” aspects of Wellness may serve to enhance currently existing models by incorporating
behaviour modification and learning approaches in order to create more comprehensive frameworks for health education and promotion.

**Wellness: Background, definitions and models**

Wellness has been described as the active process through which the individual becomes aware of all aspects of the self and makes choices toward a more healthy existence through balance and integration across multiple life dimensions (Corbin, Welk, Corbin, & Welk 2009; Hermon & Hazler, 1999; Hettler, 1980; Lent, 2004; Ryff & Keyes, 1995; Witmer & Sweeney, 1992). An optimum level of wellness is often described as “high-level wellness” (Dunn, 1961). High-level wellness encompasses the condition one perceives oneself to be in when opportunity and activity for self-actualisation is reached. Wellness may be an indicator of one’s self concept or sense of psychological harmony as successively and iteratively one attains satisfaction of needs (Maslow, 1999) from the basic physiological to those at a higher level of self-actualisation.

Wellness is best conceptualised as an ongoing process rather than an endpoint, that is a state rather than a trait. In the context of this paper which focuses on educational processes that facilitate student Wellness, the following description of the Wellness construct has been synthesised from the literature to encompass a framework for exploring learning approaches:

Wellness is a state of being in which a person’s awareness, understanding and active decision-making capacity are aligned with their values and aspirations. A wellness lifestyle is the commitment and approach adopted by an individual aiming to reach their highest potential. The outcome of a wellness lifestyle is a capacity to contribute in positive and meaningful ways to one’s community, society and the welfare of the earth. An individual who adopts a wellness lifestyle aims to balance the multiple dimensions of their health and wellbeing in concert with their environment. On a continuum between low-level wellness and high-level wellness, individuals continually move between various states of physical, psychological and spiritual harmony and vary in their capacity to reach aspirations and goals.

Models of Wellness have developed concomitant with a paradigm shift in the modern conceptualisation of health (Bandura, 2001). This shift started in the mid 20th century with the World Health Organisation definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. The models of Wellness that have gained attention over the past decade continue to incorporate earlier ideas, however, are increasingly aiming to incorporate empirically derived evidence and reflect the continuing convergences across disciplines. Pragmatically, it essential that there is clarity about what Wellness comprises, how to measure it and ways to effectively facilitate it at the individual and community levels if we are to enhance the human potential in concert with the rest of the living and non-living world.

Multiple models of Wellness, including those developed by Eberst (1984), Travis (2005; Travis & Ryan, 2004), Hettler and the National Wellness Institute (NWI, 2003), Ardell (2005), Adams, Bezner & Steinhardt (1997), Myers, Witmer & Sweeney (2000) and Myers & Sweeney, (2004), appear in the published literature. A number of recurrent assumptions are apparent in these models, including wellness as a multidimensional construct, balance and integration as critical to overall wellness and the dynamic and
incremental nature of wellness for individuals. Several characteristics differentiate these models, for example some do not incorporate environmental or contextual factors whilst others do. To date, two of these models have developed through empirical studies (Adams et al and Myers, Wittmer & Sweeney) whilst the others have evolved from a more tacit knowledge base through the professional experiences and observations of the respective authors.

For the purposes of this paper, the Hettler model is used. This model and the wellness measurement instrument known as Testwell which accompanies it, are the foundational elements preferred by the unit coordinators at Queensland University of Technology for the “Fitness, Health and Wellness” undergraduate unit. The Hettler model and Testwell instrument were selected in order to provide a suitable educational framework for the design of the curriculum. Although students are exposed to several of the other models, the Hettler model was deemed as a suitable fundamental base on which the construct could be developed in concert with other curriculum objectives focused on Fitness and Health.

The models in Figure 1 illustrate the original six dimensional model and one adapted by the unit coordinators Dr Thomas Cuddihy (QUT) and Mr. Bob Boyd (QUT) and from Hettler and the National Wellness Institute (NWI, 2003) for use with students in Australia. It has the Chinese YinYang (also known as “T’ai Chi”) symbol at its centre, symbolising the centrality of “balance” and the interactions of the forces of life and nature to the construct (Durlabhji, 2004; Heider & Lao, 1985). The fluid curves separating each dimension, are intended to represent the dynamics of each dimension whilst the permeable borders indicate the interactions between dimensions and between an individual’s internal and external contexts.

Figure 1. Hettler’s Six Dimensions of Wellness and the Boyd & Cuddihy adaptation of the model

Note. From NWI (2003). Copyright 1979 by the National Wellness Institute. Adapted with permission from the author.
Wellness and higher education curriculum: a comprehensive framework for health education

Each dimension has been articulated by the National Wellness Institute as follows:

- **Physical Wellness** encompasses the need for physical activity, understanding of diet and nutrition, discouragement of the use of harmful substances and personal responsibility for medical and self-care;

- **Social Wellness** encourages contributing to one’s environment and community through involvement in preserving societal and natural environmental stability; it encompasses the quality of our relationships, satisfaction in our social roles, our sense of belonging, and feelings of love and acceptance;

- **Occupational Wellness** is founded on the principle of personal satisfaction and enrichment of life through work. Meaningful work which requires development is unrelated to attitude and personal choice;

- **Spiritual Wellness** embodies the beliefs and attitudes towards nature and the meaning-making an individual undertakes to identify what has ultimate value to them. It is evident in the search for and understanding of how life is, or ought to be and thus the choice of direction and resulting feelings of life’s purpose;

- **Intellectual Wellness** meshes together the state of one’s knowledge, skills and creativity for problem solving and learning. Enhancement is possible through seeking challenges and actively striving to reach a potential and share with others;

- **Emotional Wellness** is representative of the awareness, understanding and management of one’s feelings and behaviours related to these such as the ability to experience and express the full range of human emotions in appropriate ways including stress and relationship management (Hawks, 2004; NWI, 2003).

Given the definition of Wellness as a state of being in which a person’s awareness, understanding and active decision-making capacity are aligned with a set of values and aspirations, the Hettler model has the characteristics of an heuristic from which to guide the study of interactions between learning and Wellness. It offers areas over which a student feels s(he) has control and thus may be able to manipulate in order to make choices about lifestyle in order to enhance her/his Wellness.

**Measuring Wellness**

The complex and emerging and yet elusive clarification of the Wellness construct coupled with the diversity of fields of research and multiple models of Wellness has resulted in a proliferation of Wellness testing instruments. Evidence of empirical analysis of proposed inventories is scant however several studies have been conducted which attempt to validate the available instruments. Efforts to establish the content and construct validity have mainly been with university and school student populations. The available inventories all purport to be instruments designed for use by the individual for the purpose of self-assessment. If wellness inventories are to be used as an educative tool, the establishment of reliability and validity measures serves to provide information to academics and others when selecting from amongst the options.
Most of the Wellness inventories and validation studies have been developed and conducted in the United States with university student populations (Adams et al., 1997; Harari et al., 2005; Hattie et al., 2004; National Wellness Institute, 2004; Owen, 1999; Palombi, 1992; Stewart, Rowe, & LaLance, 2000). There do not appear to be similar inventories specifically customised for the Australian context nor are there instances of studies designed to test reliability and validity with Australian university students. The use of the Hettler six dimensional model of Wellness and the accompanying Testwell questionnaire by Wellness unit coordinators at Queensland University of Technology, offers an opportunity to fill this gap through examining and benchmarking the reliability and validity of the Testwell inventory for a defined group of students.

**Self Determination Theory**

Self-determination theory (SDT) focuses on motivation and volition or control over behaviour under the influence of psychological need fulfillment within a social context. Self-determination is defined as the healthy development of ones sense of self and structured as a “dialectic” between humans’ innate tendencies for growth and integration on the one hand and fragmentation and conditioned responses to social and environmental factors on the other (Ryan & Deci, 2000). The relevance of SDT to this paper lies in its relationship to the Wellness construct. In particular the notion of an integrated tendency of humans at the intrapersonal and interpersonal levels is fundamental to the Wellness construct and is a core assumption of SDT. Further the significance of balance and interaction between dimensions of Wellness has similar connotations to the considerations of social context to development of self-determination as described in SDT.

**Self Regulated Learning (SRL)**

Over the past twenty years, a growing body of research originating from numerous diverse disciplines such as education, health, psychology, anthropology and sociology has developed around the concepts of self-regulation and contributed to the construct known as Self-Regulated Learning. In brief, self-regulation is the ability to develop transferable knowledge, skills and attitudes and in relation to academic pursuits reflects the manner in which students enact, adapt and sustain their pursuit of learning goals (Boekaerts, 1999; Roth, Robin, & Zimmermann).

Numerous attempts to create a simple definition of SRL exist, however the multifaceted nature of the construct is best captured through the models that have been proposed by researchers such as Pintrich (2004) and Winne and Perry (2000). Variation exists across these models, often traceable to the theoretical orientation of the scholar however a number of aspects of SRL are common to all models (Puustinen and Lea, 2001). Shared assumptions are one common element and Pintrich (1999) describes the four assumptions shared by SRL theorists as:

1. “active, constructive” assumption – learners actively construct their own meanings, goals and strategies, they are not passive participants;

2. “potential for control” assumption – it is possible for all learners to control their cognition, motivation and behaviour as well as some aspects of their environments;
3. “goal, criterion or standard” assumption – benchmarks against which comparisons are made that influence whether change is needed;

4. “mediators” assumption – self-regulatory activity is a means of linking the person and context to achievement and performance outcomes.

SRL theories reflect these assumptions and incorporate into their theories with varying degrees of significance, aspects of learning and context such as the social, affective, cognitive, metacognitive, cultural, and motivational elements.

Acknowledgement of the cyclical nature of the process is also a common element of SRL models. For example, a review comparing several models of SRL indicated that although the greatest alignment occurred between models that utilised similar background theory e.g. social cognitive; all models conceived of SRL as a cyclical phased process from Preparation/Planning to Performance/Completion to Adaptation/Appraisal (Puustinen and Lea, 2001)

The journey towards clarification of this significant construct has engendered scholarship in many fields and is noteworthy beyond the specific SRL research in that there is an interdisciplinarity evident in the scholarly literature which has enriched the development of this construct for research and practice alike. The interplay between research and practice is prominent in US and European (Boekaerts, 1999) regions, however, limited literature in the Australian context exists at this time.

Much of the research which is focused on postsecondary learners deals with a subset of elements of SRL e.g. motivation, volition, time management, while few studies across the whole process of self-regulated learning are evident (Alexander & Boud, 2001). Attention to SRL is a worthy pursuit in the Australian higher education context given issues such as first year transition and the attention to quality and lifelong learning that are currently key underpinnings for current reform in the sector (DEST, 2002). The contribution of such research to enhance understanding in the design of learning environments and transition curriculum models offers significant benefits to educational programs for the university undergraduate experience as well as to the role played by higher education in facilitating lifelong learning.

Wellness in Higher Learning

Wellness education provides opportunities for students to engage in learning self-regulation skills both within and beyond the context of the Wellness construct (Becker, McMahan, Allen, & Nelson, 2004; Ryan & Deci, 2000). Through engagement with the principles of balance and integration across in all dimensions students may begin to explore proactive, self-directed approaches to lifestyle management (Ardell, 1986; Diamond, 2001; Eberst, 1984).

A number of studies in relation to the place, impact and purpose of Wellness curricula in University environments have documented several perceived benefits experienced by students of Wellness including: the value of an experiential pedagogy applied to a personal context in which students sought to utilise theoretical foundations of the curriculum in their
own lives (Hawk, Rupert, Hyland, & Odhwani, 2005), authenticity provided by the wellness construct for future practitioners as they considered the role of Wellness in their future personal and professional lives (Hawk et al., 2005; Lee & Graham, 2001), the fostering of student’s active approaches to developing personal strategies for coping with the stresses of university life (Lee & Graham, 2001) and the legitimisation of time allocated by students to pursue self care strategies (Lee & Graham, 2001).

Other findings and recommendations of studies relating to Wellness curricula include: the challenges of integrating and facilitating active learning strategies, particularly in relation to research and statistics and where students were unfamiliar with evidence-based decision-making (Hawk et al., 2005); the benefit of making the Wellness subject an explicit part of the curriculum, to address the barrier of students’ limited time for performing wellness-based activities (Lee and Graham, 2001); the need for health education programs in universities, to address students’ limited active pursuit of healthy lifestyles and their increased health risks relating to transition issues (Lee and Loke, 2005); and the lower engagement with physical activity, yet higher levels of self care, perceived self control of their lives and realistic beliefs about themselves exhibited by students aged 24-51 years as compared to students aged 17-23 years (Lee and Loke, 2005).

The most common theme of literature examining Wellness in higher learning, is the recommendation that curriculum design fosters personal experiences, reflective practice and active self-managed learning approaches in order to legitimise (give permission for) the adoption of wellness as a personal lifestyle approach in student life.

Higher education curriculum and learning

The growing emphasis on student-centred learning environments in higher education is evident in publications from political (Nelson, 2002), philosophical (Bandura, 2001); and educational domains (Brush & Saye, 2000; Laurillard, 2002; Vermunt & Verloop, 1999). The environments for such learning are designed to provide greater autonomy to students, with greater opportunities and responsibilities for developing knowledge, skills, strategies and attitudes through engaging with resources including the teaching staff and the content to be studied (Brush & Saye, 2000). Such environments aim to foster learning as change.

Powerful Learning Environments (PLEs) have been likened to ecosystems and habitats in which elements and organisms impact on and are impacted by each other (Boekaerts, 2002). The processes and influences in self-regulation and self-management may be akin to the cycles of natural ecosystems. In nature, “disturbances” impact on the balanced functioning causing a series of reactions which re-establish equilibrium. In PLE’s, for example, cognitive dissonance may result in activities by learners aimed at integrating new knowledge and skills into their repertoires in order to accommodate new ideas. Thus appropriately integrated elements or instructional measures in a PLE, provide opportunity for adaptation and learning, just as natural disturbances such as fire may provide adaptive advantage in some ecosystems (Young, Barab, & Garrett, 2000).

Given that students’ approaches to learning are dynamic and influenced by learning contexts, an exploration of the influences of learning environments on student approaches to learning may contribute to the considerations necessary for enhancing deeper approaches to
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learning. Vermetten et al (2002) suggest that elements that contribute to PLEs as described in the constructivist literature including: “realistic contexts, co-operative learning, explicitation of thinking strategies, possibilities for applying knowledge, opportunities for active learning, assessments that appeal to real understanding, and ability to apply knowledge in diverging situations” (p. 283) can improve the general level of learning processes.

If learners tend to seek alignment between the environment in which they learn and the learning “habits” they have developed, then the affordances of learning environments must be considered in terms of design and deployment (Duffy, Lowyck, & Jonassen, 1993). As learners undergo change and growth of skills, they may be placed in environments with unfamiliar and complex cognitive, metacognitive, behavioural, emotional and social territory (Ge & Land, 2003).

The heuristic role of this framework in Wellness education lies in its application to the design of a learner–centred curriculum which is intended to foster deep, self-regulated approaches by students when studying the construct of Wellness in a university undergraduate program.

Conclusion

Literature investigating the place, impact and purpose of Wellness education supports its potential for positive change in the personal and professional lives of undergraduate students, particularly in health disciplines. Gaps in the current literature, however, present challenges to educators and institutions. As stated previously, there is a paucity of research relating to the empirical clarification, measurement; and implications of cultural, environmental and gender influences relating to the Wellness, particularly within the Australian context. It is also important to note that none of the current Wellness models actually address the educative framework necessary for an individual to learn and thus become aware or understand and make choices about their own Wellness.

Pedagogical literature presents a number of concepts which are potential tools for improving the curriculum design, delivery and outcomes of Wellness education. Nevertheless, even this considerable body of literature is limited by gaps, overlapping or ambiguous terminology and differing epistemologies and methodologies that sometimes act to divide rather than integrate research findings.

Pedagogical and Wellness research may benefit from further investigation that adopts an integrated approach in relation to methodologies and cross disciplinary investigation. For example, student approaches to learning (SAL) research has largely been focused on the cognitive characteristics of learning and has a history of research from both quantitative and qualitative orientations. If approaches to learning are considered in the context of SRL processes such as strategy selection, then research methodology would benefit strategically from the integration of the well established tools of SAL research from both the qualitative and quantitative orientations. Further, incorporating broader aspects of student life contexts beyond the academic domain, as occurs in Wellness education, might enable connections to
be made with the decision-making processes that students engage in when adapting and adopting various strategies and approaches.

The literature reviewed within this paper would suggest that learner success is optimised by giving learners authentic opportunities to develop and practice self regulation strategies. Such opportunities include learning experiences that: provide options for self determined outcomes; require skills development; recognise principles of successful learning as outlined by the APA; and are scaffolded according to learner needs rather than in generic ways. Thus, configuring a learner centred curriculum in Wellness Education would potentially benefit from overlaying principles from the domains of both SRL and Wellness to highlight authentic learning as a means to lifelong approaches, triggered by undergraduate experiences.

Student perceptions are a rich and significant data base for the measurement of their experiences, activities, practices and behaviours. Wellness undergraduate education offers a context in which to confirm possibilities suggested by the literature reviewed in this paper in a practical, Australian context.

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Wellness and higher education curriculum: a comprehensive framework for health education


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Socio-cultural dimensions of Active Futures: Importance of studying migrants’ perspectives of wellness

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Abstract

In this paper we provide a migrant perspective on how women and men from a different culture perceive wellness while settling down in a new country. We are discussing the texts of research interviews with Indian migrant women and men that illuminate their perception of lifestyle enhancement in their adopted country Australia. Our purpose is to show how socio-cultural factors influence the migrants’ perspective of lifestyle enhancement, and to what extent they direct their wellness. Personal development, both in theory and practice, is a huge concept in Australia. Concerted efforts are made towards increasing public awareness about health literacy leading to a better understanding and practice of wellness. However, as research studies have pointed out, lifestyle enhancement leading to holistic wellness is not void of socio-cultural factors. The number of women and men migrating to Australia from India has increased greatly in the present decade. As migrants their participation in developing Australian society is significant. So what is their socio-cultural perception of wellness including nutrition and physical exercises as active citizens? How do young Indian migrants participate in lifestyle enhancement programmes? As parents what are their socio-cultural beliefs, attitudes, practices and values, and how do they influence their children’s participation in personal development and PE programmes? To what extent gender differences exist in such participation levels? What is the space available in State school curriculum to learn from the migrants’ cultures towards enhancing lifestyles including nutrition and personal development? The findings may sensitise Australian researchers, academics, school teachers and practitioners of wellness therapies. Long term research studies may inform the governments and HPE practitioners of the changes occurring in such values, beliefs and practices as they incorporate nutrition and lifestyles of Australian society.

Key words: Migrants, Health, Wellness, Socio-cultural

Introduction

The concept of wellness has its roots in ancient wisdom cultures, drawing from a broad range of human knowledge areas, consciousness and experience. The philosophies of Hinduism, Taoism and Buddhism emphasise on the centrality of balance in human life. The roots are embedded in the human understanding of and approaches to physical fitness, health, philosophical integration of body and mind, and spirituality. Participation in personal and community wellness is governed by race, religion, gender, and the person’s age also.
Definition of wellness

Wellness, in its most simplistic sense, means an integration of social, emotional, spiritual and physical components “that expand one’s potential to live (quality of life) and work effectively and to make a significant contribution to society” (Corbin, Welk, Corbin, & Welk, 2009). The National Wellness Institute of Australia has adopted Hettler’s model (Hettler, 1980, 2002) of wellness depicting an integration of six wellness dimensions viz., physical, spiritual, intellectual, social, emotional and occupational. In addition to the definition of wellness of the National Wellness Institute (NWI, 2009), the authors emphasise on peace and connection with one’s inner self and the natural world.

Most western countries have a national health and lifestyle goal towards increasing the span of life (healthy life) by eliminating health disparities. Personal development, both in theory and practice, is a huge concept in Australia. The National Physical Activity Guidelines suggest that every Australian adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week. Concerted efforts are being made towards increasing public awareness about health literacy leading to a better understanding and practice of wellness. As such the governments in the recent decades have stepped up their efforts to increase public access to information and services.

Individual perception of and participation in wellness programmes is influenced, to a great extent, by one’s set of values, beliefs and practices. These factors direct the person’s awareness of and approach to personal philosophy of wellness, thereby impacting on their relative decisions. However, lifestyle enhancement leading to holistic wellness is not void of socio-cultural factors. For example teenagers, who may be coming from non-smoking and non-alcohol families, are susceptible to picking up smoking and alcohol consumption behaviours quickly as an influence from their peers. A university female student born and living in Australia, studying to become a teacher may feel uncomfortable with physical education classes due to her religion and family traditions. Choosing to join a peer group of daily brisk walkers would be easier for a man of 65 years while going to the gym with friends for an hour’s exercise is more likely to be preferred by a 22 year old. Context of everyday life and individual approach to lifestyle is one of the chief determining and influential factors of personal wellness. However, case studies (Lewis, 2008) exploring particular exercise habits (for example yoga) argue for an understanding of different perspectives on wellness such as social integration, economic privilege, childhood experiences with sport and cultural values.

Several studies have inquired into the multicultural perspectives on personal and collective wellness studying culturally diverse groups in Australia. Totikidis & Prilleltendky (2006), studying multicultural communities in a western Melbourne suburb, found out that participants of their research study identified issues related to community ideals, strengths and needs that could improve their wellness.

Indians are among the fastest-growing immigrant groups, coming from Asia to Australia. The 2001 census figures have revealed that 95,452 people of Indian origin living in Australia were born in India. “According to Commonwealth statistics, Indians make up 10% of new arrivals into Australia, the third-largest group after the British and New Zealanders ….” The Australian Bureau of Statistics has reported that the total number of residents of
Indian origin in Australia has nearly doubled – from 104,000 in 2001 to 200,000 in 2007 (www.australiaindiabusiness.com, 2009). Most of the Indians who have migrated to Australia have a sound educational background. They are employed mainly in highly underlined professions such as IT and Communication, university teaching, medical, business and hospitality.

They bring with them a specific set of socio-cultural structures including diverse languages, diet, ethnicity and lifestyle approaches. Their health behaviours, dietary habits and lifestyle perceptions vary significantly from the Australian mainstream society before they assimilate with the host country’s socio-cultural set-up. Within their own category as Indians they maintain subscription to regional, language and ethnic groups in their migrated country. In addition they follow a religion which influences their health behaviours significantly (Vahed, 2007). For example, those following Hindu religion believe they are quite different from Christians coming from the state of Karnataka. They tend to form their own core ‘mini societies’ thus isolating themselves from the mainstream community. This prevents them from forming and maintaining one chief common platform representing their mother country alone without social, cultural, regional, religious, language and ethnic compartmentalisation. This makes it complicated to study or draw any conclusions about the larger, wholesome Indian immigrant group as there are various subsets of Indian immigrants with their own internal diversities. On a different note Indian immigrants, compared to many other Asian immigrants, tend to have more English-speaking ability, having better educational standards. Majority of students coming to Australia for higher education tend to have considerable good economic backgrounds.

Despite their prominent numbers in Australia, academic research studies on Indians’ lifestyles and wellness are inadequate. There is a particular need (in the context of their growing numbers) for an academic exploration of Indian immigrants’ health behaviours, risks of chronic diseases and changes occurring in their lifestyles as they adapt to the dietary patterns of the newly adopted society. Empirical research studies conducted in the United States of America (Misra & Gupta, 2004; Misra, Patel, Davies, & Russo, 2000) on the health promotion behaviours of Asian Indian immigrants have revealed interesting results. They obtained lower scores in physical activity and nutrition, and higher scores in the areas of interpersonal skills and spiritual growth. While participants in the age group of 25-50 years were more physically active, female participants were more responsible for their health than males. The researchers have, however, stressed on the need for more academic, empirical research on the health behaviours of Indian migrant population.

Research studies (Ibiebele Ibiebele, Wattanapanpaiboon, Hsu-Hage, & Wahlqvist, 2000), have revealed an increase in the health risk factors when Indians have migrated to western, prosperous countries such as Australia and America. However, exploring the perceptions and experiences of wellness among Indian migrants has been under-researched in the Australian academia.

**Purpose and the research question**

The purpose of this research study was to explore the experiences and perceptions of wellness, that included the six dimensions, of Indian immigrants living in Australia. The
main research question that was posed to the participants was what was their experience of their wellness. Sub-questions were developed during the interview.

**Methodology**

We used hermeneutic phenomenology as the methodological framework for this research study. Phenomenology is the descriptive study of an experience. Hermeneutic phenomenology provides a rich scope to access a phenomenon that is functioning at the subconscious level as an experience and bring to the fore for an interpretation (Ajjawi & Higgs, 2007). A phenomenon is essentially what appears to someone (Sokolowski, 2000; Spiegelberg, 1981; Spinelli, 1989). Phenomenological inquiry is a revisiting of our experience in contemplative mode for the purpose of discovering, not how culture has taught us to understand phenomena, but how these phenomena immediately present themselves to us (Brymer, 2005; Crotty, 1996). The knower simply understands the known through the act of knowing (van Manen, 1990). For a discussion of women’s experiences in this study we used hermeneutic analysis, which looks into the texts of experiences. Hermeneutic phenomenological frame enriches the exploration of the meanings that are existing in the texts and the underlying messages of the sub-texts, all along illuminating individual experiences of women with rich evocative meanings (van Manen, 1997). The participant narrates the experience as a journey dotted with milestones of episodes and temporal features. The researcher interprets the texts seeking the core experience (Sharma-Brymer & Fox, 2008).

**Selection of participants and methods**

Participants for this study were randomly selected, as a representative sample of Indians living in Australia. There were two main criteria for selecting the participants. They were a. Their age group between 25 and 40; b. Arriving from India to Australia for higher studies during and after 2001. Information sheets containing the purpose and aims of the research study were distributed to about 25 Indian students at University of Wollongong, Wollongong. Among them 20 potential participants were approached personally for their consent. Initial interviews were informally held for 10-15 minutes to explain the purpose and aims of the research study. Out of the 20 potential participants 10 expressed an interest and commitment to participate in the formal interviews that were documented. Interviews were held for a period of one to one and a half hours.

Semi-structured interviews were held with the participants to record their perceptions and experience of wellness while living in Australian society. The interviews were documented in a written form. All the interviews were held in English Language. They were collected between 2004 and 2006, at University of Wollongong. The domains included in the interviews were a. physical fitness; b. nutrition; c. health responsibility; d. social wellness; d. spiritual wellness. Individual and family profiles were obtained at the beginning of the interviews that included the participant’s age, gender, education, employment status, marital status, family details, individual and family medical history, type of physical activity followed for fitness, normal dietary patterns. Information about their health risk behaviours was gathered during interviews. They were asked, during the interview, to self-rate their
physical health and mental health status on a scale of 1-5 – poor, needs some attention, satisfactory, good, excellent.

Data from six participants’ interviews are used in this paper. Pseudonyms are used for all the participants. The participants were:

1. Sushma, aged 30 studying for a two-year Master’s degree programme in public health. She is married and has a five year old boy. She arrived in Australia in 2006. She has applied for permanent residency in Australia.

2. Akhila, aged 36 doing a PhD in education. She is married and has a one year old son. She arrived in 2001. She is a permanent resident.

3. Elizabeth, 25, doing a Master’s degree in finance. She is not married yet. She arrived in 2005. She is a permanent resident.

4. Saravanan, aged 33 years, doing research in sociology. He is married and has a two year old daughter. He arrived for his PhD study in 2003. He is on a student visa, but is in the process of applying for a permanent residency.

5. Prashanth, 29, doing a PhD in chemistry. He is married and has a four year old daughter. He arrived in early 2004. He is a permanent resident.

6. Victor, 27, doing a PhD in engineering. He is not married yet. He arrived in 2001. He has applied for Australian citizenship.

All except Akhila practised a non-vegetarian diet.

Interpreting the texts

Discussing the texts

The aim of this study was to explore the perceptions and experiences of Indian immigrants’ wellness while living in Australia. Interview texts were analysed using thematic analysis following identification of key words, then key sentences, then key sub-paragraphs that had a particular theme. An analysis of the interview narratives showed what the participants had internalised, believed and practised for and as their wellness.

b. Physical fitness and health responsibility as part of wellness: Compared to the younger participants, older ones, especially those having a family pointed out giving priority time to physical exercise in their everyday life after coming to Australia. They found the lifestyle supportive of engaging in a type of physical activity regularly. All the participants said they were well-aware of the healthy lifestyles and health responsibility. However, in terms of physical activity and fitness none of the participants kept up the minimum 30 minutes, everyday moderate-intensity physical activity schedule. Akhila, Saravanan and Victor followed at least one type of physical activity on a basis of 3 to 4 days a week. Prashanth followed an evening walking schedule with his family at least three times a week. Sushma and Elizabeth did not follow any physical activity.
Most of the participants said an understanding of physical fitness was put across to them, when they were growing up, as ‘keeping healthy.’ It did not translate into engaging in a physical exercise or taking active responsibility for their health. Insistence was on keeping healthy habits and preventing diseases. Though Prashanth said his father was an active follower of yoga and practised yoga everyday. Prashanth has learnt that from his father and knows that keeping physically fit means not visiting doctors, being fully physically functional in everyday life and maintain a good health and wellness. Akhila pointed out that it was a part of their everyday lives that they walked to school. Her parents walked to their workplaces. According to her it was an everyday exercise that kept up their physical fitness in those growing up years. However, as adults, herself and her siblings cut down on walking or did not engage in any form of physical activity. Spending time solely on a physical activity was not perceived to be important. Staying physically fit was not a subject in their everyday life. However, keeping up health habits for preventing diseases was an everyday insistence.

Akhila and Saravanan pointed out a significant difference in keeping up their physical fitness after coming to live in Australia. Akhila’s only type of physical activity to keep herself fit was walking occasionally before she came to Australia. After her arrival, she walked for at least 40 minutes everyday and also practised yoga which she used to many years ago in India. She discontinued this schedule after the birth of her baby and resorted to walking on a basis of 3-4 days a week. Saravanan did not find any opportunities for walking, cycling or nature walks when he was in India, which he started practising in Australia. As they incorporated a different everyday life style in Australia they could exercise to some level. In the case of Victor he continued with similar schedule of exercise that he was following in India. In the case of Prashanth it was the first time ever that he lived with his family. Before coming to Australia he was in a different country studying for his Master’s degree while his young family lived in India. It was also the first time that he followed a prescribed type of physical activity that is walking. He said his daughter’s school used Bollywood music during their physical exercise class. All these participants said their health responsibility and awareness had increased after coming to live in Australia.

There were some gender differences that came up in the analysis of the narratives – while all the three males did exercise to some extent, only one female exercised regularly; the other two did none at all. In the case of Sushma she said she did not find any time between her full time studies, her young son and her part time job. Elizabeth said she liked to socialise with her friends more than exercising in a gym. Two of her Australian friends attended Bollywood dance and aerobics classes. But she wouldn’t consider Bollywood dance as an exercise programme. Two males were more health-aware and narrated many ways of expressing their health responsibility such as regular exercise. Saravanan and Victor said they discussed stress management strategies with their male friends and colleagues in the university. Among the females Akhila said she became more practically conscious of keeping up good health as an immigrant in Australia. However, she said she could not practise her health promotional behaviours much in Australia as she used to do in India by following the principles of Ayurveda. She balanced her diet consciously. Although they said they were health-responsible the other two female participants did not specifically point out how. Among all the six participants only one participant Victor smoked cigarettes; all the three males consumed alcohol on a regular basis such as drinking beer with friends and
drinking wine and occasionally other alcohol drinks (Saravanan and Victor) at social and formal occasions. One female (Elizabeth) drank wine with friends and during formal occasions. One male (Prashanth) took a membership with a health insurance company. The other two males said they hardly visited any GPs in Australia. Akhila said she wouldn’t go to a doctor unless it was a serious illness. Sushma said she would go if she had a high temperature.

b. Nutrition: All the participants said their diet had changed gradually while living in Australia. The five non-vegetarian participants said they were eating more meat and carbohydrates in everyday diet. Akila said her diet too had changed much but towards a better result. She consumed less salt and oil. Elizabeth and Victor ate less home-cooked food as they preferred to eat out with their friends. Both pointed out that they had put on weight in the second year of their arrival. Prashanth said he preferred to eat home-cooked meals as he found homemade food tastier than outside food. But he did not hesitate to buy snacks, lollies and many of the sweets that they came across in Australian supermarkets for his daughter. He thought they did not eat out or snacked so much in their home country. He pointed out that dietary habits of his family members were becoming that of the Australian society in general – including buying fish and chips, more meat, carbo, soft drinks, snacks and so on. He felt it would impact his diet preferences too. Saravanan cooked food at home only when he could as he had a high level of social network. So he did not really focus on nutrition. He said he would prefer his children to follow Australian dietary habits. Both Saravanan and Prashanth said they and their family members had gained more weight in Australia as they participated in social gatherings and social parties more frequently. Sushma said her family too ate outside food more often; her husband consumed more alcohol in Australia as he didn’t have the watchful eyes of his family elders around him.

Being students and new immigrants in Australia the participants showed less interest in health insurance. At least two of them believed in traditional herbal (natural) healing compared to western medical interventions.

c. Social wellness: All the participants except for Akhila said their experience of social wellness was high in quality although initially they suffered from non-affiliation to their own cultural groups. Gradually they subscribed to various social networks as both students and Indian immigrants. In addition, they affiliated to their own language, regional and ethnic sub-networks that promoted socio-cultural ties within and among Indian groups. Over a couple of years Saravanan, Victor and Elizabeth had good social relations with other migrants and white Australians. Their social interactions were high in both frequency and quality. They had close friends, good peers and networks that they associated with strongly. They said they felt it was important for them to have their kind of lifestyle as they liked to keep up contact and communication with everyone in their social networks. Although it was hard for them in the beginning as they didn’t have many friends. Sushma belonged to a particular Church as her husband was a Christian and her family’s preference was to form friendships around the members of the same church and their families. She said she felt really good about it as it enhanced her feeling of affiliation. She wanted her children to be religion-active than spending time in physical exercises. Her family was also influenced by the lifestyle and values that their church promoted.
Akhila said she and her family were quite selective of their social networks. They had very few friends and no relatives circle at all. Their friends were quite close and supportive of her family’s well-being. Initially, as a new migrant in Australia, Akhila tried to subscribe to the Indian migrants’ social networks. However, over a period of two years she found that she differed in values, lifestyle and general outlook about life. So she remained on the periphery of such networks. She said she often felt a desire to belong to a particular cultural or language to feel the home culture. Without a strong subscription to a network, she said she felt lonely – especially during celebration of Indian festivals, special cultural and national occasions or at times when some significant event happened in her home country. During her narration of personal wellness she herself noticed that she had come to recognise the influence of traditional lifestyle values to modern which she believed kept up her well-being. These values were connected to the natural world, being rational and so on. She felt these values became more important in everyday life than social networks.

Prashanth said he was forming relationships with people from his language groups and would prefer to keep it that way. He said his family spent more time in social meetings and gatherings where they discussed social and family matters. This gave less time for them to be outdoors or doing outdoor activities. He felt such social relationships were important for their psychological well-being.

Sushma, Akhila and Prashanth said they missed their home country, their home culture and social networks back home. Although Sushma and Prashanth were satisfied with their membership to and participation in their respective social groups, they often longed for their relatives and close friends from their home country. Akhila felt sad about not being able to be with her sisters and their children to whom she felt very closely bonded. She also felt disconnected from her preferred lifestyle as she could not participate in her political, artistic, intellectual, social and environmental expressions. Being in a different society she felt very restricted in such expressions.

d. Spiritual wellness: On the spiritual note, Akhila said she tended to be more spiritual than physical or social. She read spiritual literature, preferred to spend more time with nature, tried to meditate occasionally, listened to calming music. She often reflected on her feelings and emotions and weighed the benefits of positive emotions against negative. She believed more in human and universal values than any particular religion. Among the other participants Victor and Elizabeth attended their Church on every Sunday and also attended occasional religion-based discussions and meeting. Victor said he occasionally participated in the Church-based charity and community works. Saravanan said he and his family had a mixture of attitudes about spirituality and as such were not too keen. Prashanth followed Hindu religion religiously, kept up all the auspicious occasions as per the Hindu calendar. In Australia he listened to Hindu religion-based devotional music more than watching television programmes as he did not connect with such programmes. He liked to visit Hindu temples in the region and kept up good contact with religious groups. Sushma tended to attend the church and its events, and friends who had the same faith. Having no extended family and little relative circle in Australia she relied more on the new church-based networks for inner peace, sharing her feelings and self-expressions. She did not find any interest in connecting to natural world. Many of these participants either had some relatives with whom they kept in touch regularly or developed close friendship bonds which they maintained well.
Interpreting the texts

The participants’ texts illuminate the diversity in the perception and experience of wellness. Age factor, family status and individual values play a significant role in directing such experiences. Young migrants are quicker to adapt to the new culture while older adults, especially if they are married and having children, are slower to adapt to the adopted culture. In some cases there is an initial excitement about the new culture in their adopted country which later deteriorates (Mirsky, Slonim-Nevo, & Rubinstein, 2007). Young adults typically have a health and fitness perspective compared to the holistic wellness perception expressed by family people. Focusing on physical health alone may lead to the exclusion of other dimensions of wellness such as emotional and spiritual. In such instances dietary and physical exercise habits of the adopted society are chosen over and above the traditional home culture. In some other case studies the connection between self and the natural world including living the traditional lifestyle becomes quite important for a person’s well-being (Wolsko, Lardon, Hopkins, & Ruppert, 2006). The participants of this study have illuminated the variations in wellness experiences. There are gender differences in prioritising physical exercise. Changes in nutrition are leading to more body fat and health risks. Interpersonal support and social networking have been prioritised over physical fitness, nutrition and spiritual wellness (Misra & Gupta, 2004; Misra et al., 2000).

The experiences and feelings reveal an under layer of confusion and conflict within one’s own self. Lack of adequate self-expression, lack of adequate platform to fulfill the sense of belongingness and decreased chances of personal happiness are evident in the experiences of older and married participants. On the other hand, lack of adequate platform to understand holistic wellness with more focus on health and fitness, and social wellness may cause conflicts in future life for the younger participants.

The perceptions and experiences of these six participants posit many implications for the Australian government and public services such as education and health. Firstly, healthcare professionals may need to recognise that migrants have a typical cultural sensitivity towards health interventions. Secondly, physical fitness is a non-priority subject in the everyday lives of multicultural communities. Thirdly, children from the migrant families may perceive and participate differently in the fitness, health and wellness programmes of their school curricula (Kirchengast & Schober, 2006). With their parents adapting to the mainstream culture with changes in diet, migrant children become prone to health risks including obesity (Anderssen, Bente., & Torsheim, 2006). Fourthly, dietary changes are in congruence with the mainstream society depending on the age of the migrant participant. Generally, the texts highlight the importance of diversity.

Conclusion

Perceptions about health responsibility and physical fitness, nutrition, and spiritual wellness differed among the six participants whereas the perception of social wellness was almost similar. There were gender differences in the practice of physical exercises for fitness and health responsibility. Social wellness of five participants took a new direction after they came to Australia. In most of the cases physical fitness and nutrition were not seen as
dimensions of holistic wellness, while social wellness was at a high. There were some clear indications of their tendency to influence their children in various dimensions of wellness.

This research indicates both individual differences and a common pattern in the experiences of Indian immigrants in the age group of 25-40 years of age. It suggests that various levels research studies are necessary to explore the experiences of different subgroups of Indians, age groups, educationa and income levels. Such research may reveal the respective group’s health behaviours including physical exercise, nutrition and health responsibility, and their wellness. Research may highlight the influence of family religion and tradition on physical exercise, nutrition and health responsibility and immigrants’ participation in healthy lifestyle programmes. They would also illuminate the parental influence on their children in maintaining a healthy lifestyle and becoming active citizens.

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Secondary schools provision of sport, recreation and physical activity opportunities: Students’ beliefs and understandings

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Abstract

In 2008 Victoria University of Wellington, in association with Sport and Recreation New Zealand (SPARC), evaluated the delivery of the SPARC ‘SportFit’ programme (the provision of sport and recreation opportunities) in six New Zealand secondary schools. Six individual case studies using mixed methodology provided the basis for the collection of data. Data collected predominantly through the questionnaire forms the basis of the findings presented in this paper. The questionnaire was one part of the wider evaluation project. The questionnaire included an investigation of:

5. students’ beliefs about their school’s provision of sport, recreation and physical activity opportunities and
6. identification of students out of school involvement in sport and recreation.

While the findings generally identify that students believe that the sport and recreation opportunities provided for them in their school environments are positive, large numbers of students are also participating in these opportunities beyond the school environment. Further research might examine the enablers and barriers to sport and recreation participation in the school and beyond the school environment as a basis for supporting non participant and continued engagement in sport and recreation opportunities beyond this age group.

Keywords: Student beliefs, Sport, Recreation, Physical activity

Introduction

Sport and Recreation New Zealand (SPARC)

Sport and Recreation New Zealand (SPARC) is the national body which caters for the provision, promotion and research of sport and recreation opportunities in and for New Zealand. SPARC was formed in 2003 as a result of a merger of the Hillary Commission and the Sports Foundation. SPARC receives funding from both the New Zealand Government and Lottery Grants, and is predominantly administered by a governing board. SPARC identifies its vision for New Zealand as “a nation inspired to be active, participate and win” (SPARC, 2008). It states its primary focus for 2008 and beyond as ‘physical recreation and sport’, rather than the wider sphere of ‘physical activity’. The three main areas of development in relation to the SPARC vision are to foster a nation which is:
physically active – for enjoyment, confidence, productivity and health

participating – whether physically participating in sport and recreation or as a caregiver supporting a child’s involvement, a coach, an official, a volunteer

performing and winning in sport and recreation, both locally and internationally (SPARC, 2008)

While SPARC has a major role to play in the broader sport and recreation community, it invests considerable funding in youth development initiatives that reflect the main areas of its vision.

SportFit

One of these initiatives is the SportFit programme. SportFit is an over-arching term used to refer to a number of initiatives managed by SPARC that promote sport and recreation opportunities for 13-18 year olds in New Zealand secondary school settings. Among the key outcomes for the SportFit programme are increased participation in quality sport and recreation opportunities, provision of pathways for students to achieve their potential in sport and recreation, improved coaching, manager and official capacity; and building school and community links for the provision of sport and recreation opportunities. These outcomes link closely with the three main SPARC outcomes identified above. Secondary schools opt into the SportFit programme as a partnership between the school and SPARC. Funding for the programme in the school is determined by a variety of measures, for example student numbers and the schools decile rating.¹ The SportFit programme is administered within the school by a Sport and recreation co-ordinator, a position which may be full or part time depending on the individual school situation and priorities. The school, through the sport and recreation coordinator and SPARC, collectively determine key performance indicators (KPI). These KPI and participation and involvement levels (students, coaches, managers and administrators) provide the basis on which the school SportFit programme is measured. Participation data are collected from all participating SportFit schools nationally to determine areas of growth, development or decline.

Methodology

Mixed method

The theoretical paradigm or underlying foundation on which the SportFit research (Gordon, Hullena, Harker, McKenzie & Meyer, 2008) is based links strongly with that of qualitative research where the construction of knowledge is based on the meanings attached to the phenomena being researched (Kraus, 2005). Qualitative researchers prefer to understand a

¹ A school’s decile indicates the extent to which it draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Decile 10 schools are the 10% of schools with the lowest proportion of these students. Ministry of Education (2009).
phenomenon by viewing it in its natural context where participants are immersed in the setting. While in-depth case study data would be required, there were elements of the research which required the collection and analysis of quantitative data. Examples of this include both the SportFit Census examination and the questionnaire data. For this reason mixed method case study strategies were identified by the researchers as most appropriate to gain the range and detail of data required by this research task. The evaluation of the SportFit programme involved six secondary school case studies across a range of geographical areas, urban and rural settings, ethnicities, decile ratings and nominal quality of SportFit practice as determined by SPARC. Qualitative research is based on the premise that there are multiple realities, that is people process experience and construct meaning from it in different ways (Cohen, Manion & Morrison, 2000, Cresswell, 2003). Purposively selected sites reflected the broad scope of settings identified above and allowed for the collection of data from multiple sources and situations. This allowed for the identification and inclusion of the multiple realities across those involved. Each case study explored data from multiple sites to gain an in-depth understanding of the schools individually and collectively to identify the similarities they shared and the differences that separated them. While these understandings may potentially offer an insight into the experiences of other schools, a case study approach does not allow for generalisations to be made.

**Questionnaire**

Development of the questionnaire was based around the key areas of investigation required by SPARC. It included open-ended and closed questions, and required responses to ranked and Likert scale questions, which sought to collect data from a variety of viewpoints and perspectives.

The selection of the classes, the time and the place for completion of the questionnaire was organised by the sport and recreation coordinator in each of the schools. The only stipulation required in the class selection was that each class reflect a broad cross section of students. Students from one year 10 (14-15 year olds) and one year 12 (16-17 year olds) class at each of the six schools completed a questionnaire (N=250). Participation by the students was optional. The researchers administered the questionnaire which occurred while the researchers were present in the school; this included the introduction, distribution and collection of the questionnaires. The questionnaire was administered during normal class time. Only those students who were 14 years and older at the time the questionnaire was administered completed the task. Each student was provided with an information sheet, and completion of the questionnaire denoted their consent to be involved.

**Data analysis**

Analyses involved both qualitative and quantitative data using relevant software packages. Data from the student questionnaire were coded for analysis using basic descriptive statistics; these were analysed using SPSS. The qualitative analysis of the questionnaires was carried out according to the principles and practices of grounded theory, that is the approach allowed the researcher to study a phenomenon without prescribed parameters where the issues could emerge (Kezar, 2005). Data were coded using the QSR Qualitative Research (non-numerical unstructured data indexing, searching and theorising) software package to identify patterns and assist in meaningful interpretation. The writing of case reports and the final report was based on multiple sources of data collected during the
research process. These included interviews, questionnaires and appropriate documentation. This paper and these findings were informed by the data collected during through the questionnaire.

The results from the questionnaires formed the basis of the findings as portrayed by student voice, which identified student beliefs and understandings about their sport, recreation and physical activity experiences both within their school environment and outside of it. Student beliefs and understandings were self reported through the questionnaire and it is acknowledged that there is always a concern with the accuracy of self-reported data. The research project is of national scope and significance. The research findings and outcomes are of importance to the educational community, in particular secondary schools, and the sport and recreation sector.

*Ethics*

This project involved ethical considerations at individual, school and national levels; consequently ethical approval was applied for at each of these three levels and subsequent approval was received from the VUW Human Ethics Committee. This approval establishes confidence that all ethical issues have been addressed in a satisfactory manner that protects those involved and minimises the potential for harm that is always present in any research with human participants.

Schools selected were invited to participate, so that their involvement was active and positive. The identity of participating schools and groups has not been publicly revealed and has been kept confidential throughout the research. Data have been disaggregated for various analyses and will not be described in research reports or website publications in any way that will allow identification of individual schools or persons.

*Findings*

*Themes*

The following four major themes emerged from the data. These were that:

- the SportFit programme was highly valued by students and was providing an important function within the school
- the sport and recreation co-ordinator’s job was to do exclusively with the organisation of sport in the school
- there was a large disparity between the provision of sport opportunities as compared to the provision of opportunities for physical activity and recreation at school, and
- they [the students] were involved in high levels of personal participation across a range of sport, recreation and physical activities beyond the school environment.
Students interviewed from all six schools valued highly the SportFit programme in their own school. They believed that the SportFit programme and the sport and recreation co-ordinator in their school were fulfilling an important function. Students’ comments included:

The work of the coordinator helps the school develop well rounded individuals and this is great value.

We’d be sunk without her.

I think they help kids stay healthy and teach them the sports they like.

Students believed that the role of the sport and recreation co-ordinator in the school was exclusively to do with the organisation of sport in the school. In general they considered sport was well catered for with most students satisfied with the opportunities their school provided. Students commented that:

For a school our size I think it caters for sport, etc, very well.

[We are a] good sporting school.

[school name] are very into sports – they give great opportunities and encourage sport activities.

Students’ beliefs were generally positive about their school’s provision of sport (Table 1) with 65.6% ranking their school as excellent or good in this area.

Table 1  Students’ beliefs about the range of sport activities provided by their school (Gordon & Hullena, 2008)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td>Poor</td>
<td>20</td>
<td>8.0</td>
</tr>
<tr>
<td>All right</td>
<td>62</td>
<td>24.8</td>
</tr>
<tr>
<td>Good</td>
<td>113</td>
<td>45.2</td>
</tr>
<tr>
<td>Excellent</td>
<td>51</td>
<td>20.4</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td><strong>Total All schools</strong></td>
<td><strong>250</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The same level of satisfaction was not evident in relation to the provision of recreation and physical activity opportunities where few students ranked their schools highly. The students were less positive in their judgements about their school’s provision of recreation and physical activity opportunities with close to 66% ranking their schools as, very poor, poor or all right (Table 2).

Table 2 Students’ beliefs about the range of recreation/physical activities provided by their school (Gordon & Hullena, 2008)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>24</td>
</tr>
<tr>
<td>Poor</td>
<td>57</td>
</tr>
<tr>
<td>All right</td>
<td>84</td>
</tr>
<tr>
<td>Good</td>
<td>67</td>
</tr>
<tr>
<td>Excellent</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
</tr>
</tbody>
</table>

A number of students commented that:

Nothing goes on at lunchtime.

Only games at lunchtime are the ones we make up ourselves; teachers, volunteers don’t have anything to do with it.

Could have more activities during lunch, and allow having sport equipment, most of the time the teachers won’t give us a ball or they confiscate it so no games can be played. Students are just left with outside courts, some square grids and when wet just left for shelter.

An examination of the data to identify cumulative student perspectives by school (Table 3) offers support for the findings. In five of the six cases the data are higher by school in relation to the provision of opportunity for engagement in sport as opposed to those opportunities for recreation and physical activity. In five schools roughly twice as many students rank their school’s provision of sport as good or excellent as they do for the provision of recreation and physical activity.
Table 3 Comparison of students’ beliefs about the provision of sport and recreation/physical activity by school (Gordon & Hullena, 2008)

<table>
<thead>
<tr>
<th>School</th>
<th>Range of sport activities provided by school. Ranked good or excellent by students (%)</th>
<th>Range of recreation/physical activities provided by school. Ranked good or excellent by students (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decile 10 girls, urban</td>
<td>94</td>
<td>15.4</td>
</tr>
<tr>
<td>2. Decile 3 co-ed, urban</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>3. Decile 10 co-ed, urban</td>
<td>81</td>
<td>56.7</td>
</tr>
<tr>
<td>4. Decile 3 co-ed, urban</td>
<td>50</td>
<td>22</td>
</tr>
<tr>
<td>5. Decile 8 boys, urban</td>
<td>47</td>
<td>25</td>
</tr>
<tr>
<td>6. Decile 8 co-ed, rural</td>
<td>67</td>
<td>29</td>
</tr>
</tbody>
</table>

A large number of students involved in completing the questionnaire identified high levels of personal participation across a wide range of physical activities outside of organised school sport, recreation and physical activity. When asked to list their sport and physical activity participation outside of school a total of 57 different activities were identified, involving a total of 497 activities over 250 students. This corresponds positively with similar data collected during the Active NZ Survey (2007-08) which identified that in the 16-24 year old age group across a 12 month period, 97.2% of the population participated in one sport and recreation activity, 90.3% participated in two sport and recreation activities, and 81.5% participated in three or more sport and recreation activities (SPARC, 2008). Previous research conducted and reported by SPARC indicates that almost all young people (92% or 669,000) take part in some sport and active leisure over the year. Earlier research conducted in NZ in 2001 identified high participation rates for both boys and girls (93% and 91% respectively). Participation for young people aged 5 to 15 years old was higher (around 94%) although by 16 and 17 years of age this level was lower at 78% (SPARC Facts, 2001).

Data from the research questionnaire acknowledged that 190 students (76%) identified that they were involved in competitive school sport while 125 (50%) indicated that they were involved in social school sport. Comparatively in the findings identified in the Active NZ Survey 53.1% of 16-24 year olds participated in an organised competition or event over the past 12 months.

An example of the positive relationship between the different sets of data can be seen in Table 4 below. Of the top 10 most popular sport and recreation activities participated in by
16-24 year olds across the population (Active NZ Survey, 2007/08) all 10 of these were identified within the top 13 sport and recreation opportunities for 13-18 year olds as identified from the data collected by the research questionnaire. The table below identifies the 24 most popular sport and recreation activities collected by case study questionnaire with the top 10 identified in the broader Active New Zealand study (identified in ranked order of popularity). The evident statistical similarities identified through two separate independent research projects would seem to support the validity of the research findings.

### Table 4  
Sport and recreation activities that students participated in outside of their school

<table>
<thead>
<tr>
<th>Activity</th>
<th>Active NZ Survey (07/08)</th>
<th>Frequency</th>
<th>Activity</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Netball</td>
<td></td>
<td>42</td>
<td>15. Athletics</td>
<td>10</td>
</tr>
<tr>
<td>3. Walking</td>
<td>2nd</td>
<td>40</td>
<td>16. Fitness circuits</td>
<td>9</td>
</tr>
<tr>
<td>4. Dancing</td>
<td>5th</td>
<td>32</td>
<td>17. Skateboarding</td>
<td>9</td>
</tr>
<tr>
<td>5. Cycling</td>
<td>6th</td>
<td>26</td>
<td>18. Horse riding</td>
<td>8</td>
</tr>
<tr>
<td>7. Soccer</td>
<td></td>
<td>23</td>
<td>20. Cricket</td>
<td>6</td>
</tr>
<tr>
<td>10. Touch</td>
<td>9th</td>
<td>16</td>
<td>23. Motor cross</td>
<td>5</td>
</tr>
<tr>
<td>12. Tennis</td>
<td>10th</td>
<td>15</td>
<td>25. Skiing</td>
<td>4</td>
</tr>
<tr>
<td>13. Basketball</td>
<td>7th</td>
<td>11</td>
<td>26. Triathlon</td>
<td>1</td>
</tr>
</tbody>
</table>

The data in **Table 4** provide a consistent picture of the types and the popularity of different sport and recreation activities students were participating in beyond formalised school opportunities. The Active NZ Survey (2008) identified that the highest level of
participation of any age group involved in a sport or recreation club or centre was the group from 16-24 years of age at 51.6%.

Discussion

This research showed that in general students believed that they had good or very good opportunities to engage in sport and recreation opportunities at school. Students also indicated that they made the most of the opportunities available to them in their communities by becoming involved and participating. The broad range of sport and recreation opportunities that students identified as those they participated in beyond school but within their community reflected a diverse range of interests and willingness to be involved. This level of participation would indicate that for many students accessing sport and recreation opportunities within their community while still at school was something they felt confident about doing.

While it would seem that the SportFit programme in NZ secondary schools provides an important function in terms of student participation in sport and recreation, school links to community clubs and associations related to sport and recreation must be fostered so that these high levels of student participation beyond the school environment can be maintained. Earlier research which investigated SportFit and was commissioned by SPARC (Jakob-Hoff, Postlethwaite, Stokes, Talagi & Millard, 2003) identified the importance of increasing links with community clubs and groups as a factor essential for the success of SportFit. The high incidence of participation and involvement beyond the school provision of sport, recreation and physical activity (SPARC, 2007/08, 2008) may be attributable to the above recommendation to SPARC and subsequent programming directives.

In both the above research studies (SPARC, 2007/08, 2008) student involvement across areas (sport, recreation and physical activity) were highest in this youth age group. Participation in sport and recreation for this age range of New Zealanders provides a positive picture of their involvement and participation. Further research might explore the barriers and enablers to participation for this age group beyond school and such findings may provide the basis and direction for future funding and initiatives which seek to maintain this level of participation for this age group and into the next.

Further in-depth research and consultation with both students and schools specifically in this area would add to the existing research literature and explore student understanding about how their diverse participation experiences might be better enhanced by SPARC programmes and initiatives, supported by the School and either local or national sport and recreation organisations. As mentioned, these data formed one part of a bigger research project which was to evaluate the SportFit programme in secondary schools.

References


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From surfboard wax to salient health inequity: School programs to develop globally aware and active citizens

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¹Queensland University of Technology, Australia, ²SurfAid International Schools Program, Australia

Abstract

During the past century, significant improvements in the prevention, detection and treatment of infectious disease have positively impacted upon quality and quantity of life for many people worldwide. Despite this progress, there are large numbers of people currently living in developing regions of the world where infectious disease continues unabated. SurfAid International is a humanitarian organisation that has brought significant health improvements to the people living on the Mentawai and Nias islands of Indonesia. The SurfAid International Schools Program aims to develop global citizenship and social responsibility by providing a bridge between school settings and the critical work of SurfAid International. This paper provides a rationale for the development of contextualised school based programs and identifies potential impact upon the thoughts and actions of young people in schools.

Keywords: Health, School, Citizenship, Surfing

Introduction

SurfAid International (SAI) is a humanitarian organisation delivering a diverse range of community based health promotion programs. These programs collectively represent effective initiatives to address observed inequity for people living on the Mentawai and Nias islands, off the coast of Sumatra, Indonesia. The following quote, from the Jakarta Declaration on Leading Health Promotion into the 21st Century, emphasises key strategic directions for health promotion emphasised by the World Health Organization (1997, p. 2).

“Health promotion, through investment and action, has a marked impact on the determinants of health so as to create the greatest health gain for people, to contribute significantly to the reduction of inequities in health, to further human rights, and to build social capital. The ultimate goal is to increase health expectancy, and to narrow the gap in health expectancy between countries and groups.”

This paper will demonstrate the motivations behind establishing and sustaining SurfAid International, indicate how the SurfAid International Schools Program can provide a link between global and local settings, and provide a rationale for an integrated SAI focus within the school context.
Addressing health inequity in the Asia-Pacific region

The rise of SurfAid International: A humanitarian organisation

In 1999, physician and surfer Dr Dave Jenkins went on a surf charter to the Mentawai islands with one goal in mind: to find perfect waves. The surf proved to be everything he had hoped for. What he also found though were the Mentawai people, mostly women and children, suffering and dying from the ravages of malaria and other preventable diseases. Dave questioned what he was doing with his own life by pursuing personal career goals, and he found that he was unable to just walk away. It was a defining life moment. He sought support from like-minded individuals and went on to establish SurfAid International, a non-profit organisation dedicated to the alleviation of human suffering through community based health programs. In the aftermath of the 2004 Asian Tsunami and 2005 Nias Earthquake, SurfAid expanded its operations to Nias. With the support of the New Zealand and Australian Governments, the global surfing and wider community, and most importantly the Mentawai and Nias people of the affected areas themselves, SurfAid has come to exemplify the healing power of cross-cultural partnerships.

SurfAid International health programs and initiatives

The mission of SAI is to develop and synthesize a series of proven, high impact and cost effective approaches that create lasting improvements in the health and wellbeing of individuals and communities at increasing scale. SurfAid International anticipates entrusting full control to the communities in the further development of their own health and wellbeing, supported by an environment conducive to reaching their full potential. The following list identifies current SAI programs that are demonstrating successful outcomes. These programs utilise a community based approach and empower the Mentawai and Nias people to facilitate change within their own communities. Further information about these programs can be found via the SAI website; http://www.surfaidinternational.org.

Current SAI programs include:

• Mentawai and Nias Malaria Free Programs,
• Mentawai and Nias Community Based Health Programs,
• Katiet Community Health Training Centre,
• Emergency Preparedness (E-Prep) Program,
• Nias Water and Sanitation (Watsan) Program.

Bridging the gap between global and local contexts

In addition to the health and emergency programs listed previously, SAI operates a sixth program, the Schools Program which is supported by its own dedicated website; http://schools.surfaidinternational.org. The mission of the SAI Schools Program as outlined through the website (SurfAid International Schools Program, 2009), is to:
“develop global citizens using the humanitarian challenges and achievements of SurfAid International as an educational example for action. The program provides an exciting learning opportunity and educates students about the people of the Mentawai Island region. It encourages the development of global citizenship and a sense of social responsibility along with an understanding of how we as individuals can make a difference in our world.”

A brief history of the SurfAid International Schools Program

The SAI Schools Program was developed from the initiatives of Vivienne Hill in New Zealand and Milton Brown in Australia. They independently saw the value of SurfAid as a vehicle for values-based education and wrote materials for their own schools. The current SAI Schools Program came into being after the engagement and support of two New South Wales Department of Education Curriculum Officers, Karen Yager and Christine Painter. Their involvement provided the impetus for SAI to approach Billabong with a funding request. This approach was successful and a direct response was the development of more detailed teaching and learning materials. The program was officially launched in August 2007 and was attended by representatives from SAI, Billabong, the NSW DET, the Indonesian Consulate and many other community representatives.

The SAI Schools Program provides free resources to registered users, developed for the age range 10 – 17 years. These resources include complete teaching programs, single lessons and individual worksheets. The SAI Schools Program website has a free photo library, music downloads, blogs, forums, news and many other features. These additional resources can be used by schools to develop context specific learning and teaching materials.

Supporting school programs connected to global contexts

The SAI Schools Program supports the development of school based initiatives and learning opportunities that promote global awareness and active citizenship. The following section will provide a rationale for an integrated SAI focus in a school setting in order to facilitate relevant, meaningful, engaging and effective learning opportunities for students.

School programs to develop globally aware and active citizens

A focus on learning opportunities

Bloom’s taxonomy of educational objectives will be used as a framework for identifying and discussing learning outcomes. Bloom’s taxonomy outlines three learning domains: cognitive, affective and psychomotor (Bloom 1956, cited in Bolin, Khramtsova & Saarnio, 2005). This section will focus on an integrated approach to learning and teaching using the actions and work of SAI as stimulus for developing authentic learning opportunities. Table 1 below provides a simplified demonstration of the cognitive and affective learning domains, represented as a hierarchy to establish a common understanding and basis for interpreting the information to follow.
Table 1 Bloom’s taxonomy of educational objectives – A simplified representation of the cognitive and affective domains (Developed using information adapted from: Anderson et al., 2001; Krathwohl, Bloom & Masia, 1964).

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>Affective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Synthesis and Evaluation</strong>&lt;br&gt;Critiquing, judging, appraising, planning, designing, creating, generating &amp; producing.</td>
<td><strong>Internalising Values</strong>&lt;br&gt;Integrating values, advocacy, enabling, influencing &amp; philosophical positioning.</td>
</tr>
<tr>
<td><strong>Application and Analysis</strong>&lt;br&gt;Comparing, contrasting, executing, implementing, differentiating, organising &amp; attributing.</td>
<td><strong>Valuing and Organisation</strong>&lt;br&gt;Prioritising, initiating, endorsing, proposing, appreciating, assuming responsibility &amp; behavioural adaptation.</td>
</tr>
<tr>
<td><strong>Knowledge and Understanding</strong>&lt;br&gt;Recognising, recalling, interpreting, classifying, summarising, inferring, comparing &amp; explaining.</td>
<td><strong>Receiving Phenomena and Responding to Phenomena</strong>&lt;br&gt;Observing, acknowledging, attending, responding, cooperating, considering, participating, exploring, engaging &amp; contributing.</td>
</tr>
</tbody>
</table>

For the purpose of this discussion, authentic learning opportunities include experiences that allow students to apply knowledge as they explore and investigate the world beyond their immediate learning environment (Callison & Lamb, 2004; Bolin, Khramtsova & Saarnio, 2005). It is through their investigations, that students are provided with opportunities to actively engage in the learning process and ascend both the affective and cognitive learning domain hierarchy.

In recent times, the field of neuroscience has provided a greater understanding of the human brain and cognitive processes. Much of this ongoing research has direct applications to educational contexts, through a greater understanding of cognition, learning outcomes and affective associations. Neuroscientist Susan Greenfield (2000, p. 13) describes the mind as a “seething morass of cell circuitry that has been configured by personal experiences and is constantly being updated as we live out each moment”. When students are exposed to authentic learning experiences and challenged to investigate and respond to issues in society, there is a clear amalgamation of both cognitive and affective learning. An understanding of learning processes, from both biological and sociological perspectives is necessary to deliver effective learning opportunities. The following discussion will consolidate biological and
sociological perspectives of learning and indicate potential educational outcomes from integrated SAI foci in the school setting.

Educational applications of neuroscience research primarily revolve around inputs to, and outputs from, the limbic system which occupies a central position in the brain. The limbic system, sometimes referred to as the emotional centre of the brain, contains the amygdala which screens sensory input to the brain. The amygdala appears to support an affective association with experience (Zull, 2002). This emphasises the need to capture student interest, attention and curiosity as a starting point for ongoing engagement through intrinsically motivating experiences. The inclusion of SAI foci may help to capture student attention, either through an inquisitive interest in other cultures and the experiences of other populations or associations with popular culture.

Outputs from the limbic system are sent to higher regions of the brain for further processing. From here, the process of neuroplasticity determines what learning takes place, as well as the complexity and strength of learning. Neuroplasticity allows learning to occur through the generation of new nerve cells connected to different regions of the brain or through expansion and retraction of existing neural networks (Azmitia, 2007; Will, Dalrymple-Alford, Wolff & Cassel, 2008). Brain imaging studies have demonstrated that active learning processes can engage many areas of the brain including the emotional centre (limbic system) and can result in extensive activation of the frontal lobe of the cortex, the region responsible for higher order functioning including reasoning, planning and problem solving (Poldrack, 2001, cited in Zull, 2002). Through an inquiry based approach, a SAI focus could act as the vehicle for developing more extensive neural networks developed to support higher order cognitive and affective processes. Engaging students in meaningful investigation of real world issues helps to promote student interest, enhance motivation and provides a platform for influencing future thoughts and actions. In essence, this represents a process that maximises learning and supports the development of lifeskills for a future beyond the school gates.

An integrated SAI focus within the school setting provides an opportunity to enhance both cognitive and affective learning, through authentic learning experiences and tasks that reflect the principles of global education and values education. Global education “involves learning to understand and appreciate our neighbours who have different cultural backgrounds from ours; to see the world through the eyes and minds of others” (Tye, 1991; cited in Tye, 1999, p. 17). An effective values based approach to education on global issues has the capacity to influence attitudes and develop informed citizens who are capable of, and feel compelled, to take action (Halstead & Pike, 2006). Within the individual, there is an observable shift from global awareness to global consciousness and finally active citizenship. This can be achieved through learning opportunities that move beyond a focus on values clarification to dispositions to act (Aspin, 2002; Halstead & Pike, 2006). When students start to gravitate towards a more altruistic focus, they go beyond simply understanding and appreciating diversity, to a point where they can demonstrate active citizenship. It is through this process that students can develop higher order functioning through both the cognitive and affective learning domains, as evident through table 1. Staley (cited in Tye, 1999, p. 58), recognised the most widespread approach for developing global education programs occurs via “the infusion of global perspectives, ideas and activities into existing curricula”. If you
take the time to glance through the range of syllabus documents evident in the Australian context, a common feature of many is an emphasis on the development of lifelong skills and provision of opportunities for students to become autonomous and critically reflective citizens. Table 2 indicates the general alignment of potential educational outputs and productive pedagogies (Education Queensland, 2002) with the cognitive and affective learning domains.

**Table 2** General alignment of educational outcomes and productive pedagogies with learning domains.

<table>
<thead>
<tr>
<th>Cognitive →</th>
<th>← Affective</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inquiry process (investigation)</td>
<td>• Social responsibility</td>
</tr>
<tr>
<td>• Deep knowledge and understanding</td>
<td>• Active citizenship (empowerment &amp; motivation)</td>
</tr>
<tr>
<td>• Higher order thinking</td>
<td>• Health issues – inequity &amp; complex relationships</td>
</tr>
<tr>
<td></td>
<td>• Global consciousness</td>
</tr>
<tr>
<td></td>
<td>• Egocentric → Altruistic</td>
</tr>
<tr>
<td></td>
<td>• Cultural knowledge</td>
</tr>
<tr>
<td></td>
<td>• Narrative</td>
</tr>
<tr>
<td></td>
<td>• Global awareness and connectedness</td>
</tr>
<tr>
<td></td>
<td>• Values clarification</td>
</tr>
</tbody>
</table>

**Alignment with curricular and co-curricular foci in a school setting**

When considering new curricular and co-curricular offerings, a careful examination of the school context is necessary. All schools exhibit their own unique characteristics. School variations range from subtle nuances to significantly different ethos and ideologies. Table 3 identifies a range of potential SAI applications in a school setting. This table should not be viewed as an exhaustive list, but rather a sample of possible applications, viewed as stimulus for generating additional ideas. Please note that this information can be interpreted and applied in different ways, according to the school context. Examples for the curricular category include:

- Development of rich tasks based upon real issues in society applied across the curriculum – *Integrated knowledge, skills and processes*;
- Applied tasks and learning experiences within traditional subject domains.
<table>
<thead>
<tr>
<th>Curricular</th>
<th>Health and Physical Education</th>
<th>Studies of Society and Environment</th>
<th>Science and Mathematics</th>
<th>English</th>
<th>Design, Technology and The Arts</th>
<th>Co-curricular</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Health of specific populations</td>
<td>• Geography</td>
<td>• Ecology</td>
<td>• Interpreting, analysing and composing texts</td>
<td>• Communication methods and tools</td>
<td>• Student groups</td>
</tr>
<tr>
<td></td>
<td>• Health status, inequity and social justice</td>
<td>• Culture</td>
<td>• Climate and weather</td>
<td>• Narrative communication</td>
<td>• Solutions for managing health issues</td>
<td><strong>Sport and Recreation</strong></td>
</tr>
<tr>
<td></td>
<td>• Investigating health issues and health promotion – Examples: Infectious disease (water-borne &amp; vector-borne), nutrition &amp; community programs</td>
<td>• Resources and sustainability</td>
<td>• Natural disasters</td>
<td></td>
<td></td>
<td><strong>Surfing - recreational activity or competitive sport</strong></td>
</tr>
<tr>
<td></td>
<td>• Physical activity and recreation studies – Surfing, surf awareness &amp; lifesaving</td>
<td>• Social responsibility</td>
<td>• Understanding &amp; presenting data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-curricular</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A challenge for you

Recognising opportunities in the school setting

Take some time now to consider how you could develop an integrated SAI focus within a school setting. What new experiences and opportunities could be offered to the students within this context? Figure 1 below outlines a framework for conceptualising an integrated SAI focus within a school setting.

Figure 1 A framework for conceptualising an integrated SAI focus within a school setting.

Committing to the challenge and building a support network

If you can identify a place for an integrated SAI focus within a school context, we challenge you to develop your thoughts and ideas, conceptualise a plan and be prepared to share it. Identify individuals and groups within and beyond the school setting who may help facilitate change. As you conceptualise the plan, carefully articulate the reasons behind your proposal. An ability to justify your thoughts and actions will be necessary when you reach a discussion stage.

Conclusion

The future of the world rests in our ability to move from a focus on globalisation with its economic prominence towards a shared global consciousness which recognises the importance of intercultural understanding. A real and ongoing connection exists between the surfing community and the people of the Mentawai Islands. It is this connection that has highlighted opportunities to address inequity, improve health status and strengthen social capital. Schools have the capacity to empower students and enable the next generation to change their world for the better. This might sound like an idealistic notion, however the
astute provision of engaging and meaningful learning opportunities can have a positive influence on thoughts, attitudes, values and actions. Infusion of SurfAid International foci within the school context could provide a way to achieve these educational outcomes through authentic learning experiences structured around real issues in society.

References


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SECTION 4:

Developing Sporting Excellence
Comparing the effect of two reduced training programs volume and frequency on changes the muscle strength and flexibility of elite volleyball players

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¹Islamic Azad University, Iran, ²Shahid Beheshti University, Iran

Abstract

The present research aims at considering the effects of training programs known as reduced training volume and frequency on changes the muscle strength and flexibility of 30 elite volleyball players. 30 elite Birjand volleyball players took part in this study. They were randomly divided into three groups of ten as reduced training volume group, reduced training frequency group, and control group. A pre-test was conducted to measure the subjects’ muscle strength and flexibility when they were in their best physical position (after the competitions). The reduced training volume group diminished their training time from 1 hour and half to half an hour whereas the frequency of trainings was left as before (3 sessions per week). The reduced training frequency group, on the other hand, reduced their training from three sessions to one, whereas the volume of training per session was as before (1 hour and half per session). The subjects were given the same test as the pre-test after two weeks and the data were analyzed using T-test and one-way variance tests. The results indicated that reducing the volume or frequency of trainings did not have any significant effect on muscle strength or flexibility of the elite volleyball players, but the strength of experimental group was more than control group. Flexibility was higher in reduced training volume group than the other two groups. The results indicate that the athletes are suggested to avoid detraining after the competition season ends and to reduce the volume or frequency of their training instead.

Keywords: Reduced training program, Elite volleyball players, Flexibility, Strength

Introduction

In line with rapid development of science and technology, physical education as a comprehensive science is improving rapidly. The improvement of records, skills, techniques, and tactics during the previous decades indicates the underlying development of sportive knowledge as well as researchers and sports instructors. Scientific findings have played a significant role in planning and performing training programs for athletes. Besides genetic factors playing an important role in sportive performance, training methodology is considering to affect this improvement (18). Sportive researches play a significant role in enhancing the quality of training methodology (18).
An ever-lasting effort to improve sportive performance makes the athletes devote a lot of time to training program to have a better performance. For some, the end of competition season is the time to rest.

One of the significant factors considered by instructors and athletes is recovery or loosing the capabilities or adaptations the athletes acquired during practicing due to lack of training.

The evidence suggests that stopping trainings for long or short periods makes considerable changes in both physical conditions and performance (1, 4, 5, and 7). Having training, the athletes can gradually improve their adaptations and become stronger. The instructors have replaced detraining by reduced training because of scientific developments (6, 9, 10, 11).

Tucci et al (1992) investigated the effect of reduced training and detraining on muscular power of lumber extensors and came to the conclusion that having no training leads to loosing strength whereas reduced the training will retain it (19). Hickson & Rosenkoetter (1981) investigated the role of reduced training on aerobic power and concluded that it retains it (11). Houmard et al (1990) conducted a research on the effects of detraining on the levels of testosterone and cortisol hormones and creatin kinaz enzyme and concluded that it had no effect on testosterone and cortisol whereas cratinin kinaz was considerably diminished (13). The reduced training includes reduced training volume, frequency and intensity. The researches have not stated which method is more efficient. There is no consensus on how to use these methods. The question here is reduced training volume or frequency can affect muscle strength and flexibility in elite volleyball players, and that which method can better retain or improve the aforementioned factors.

Methodology

30 elite volleyball players in Birjand with at least five years of experience, having an average of 3 training sessions per week for 1 hour and half during 6 months before the research were randomly selected. Their average height, weight, and age were 179 cm, 76 kg, and 24.22 years respectively. The pre-tests including strength measurement (using hand grip), flexibility (through seat & reach test) were taken after the competitions when the subjects were in their best situation. The subjects were then randomly divided into three training groups as reduced training volume group, reduced training frequency group, and control group.

Reduced training volume group program: This group reduced their training session from 1 hour and half to half an hour per session while the number of sessions per week did not change.

Reduced training frequency group program: This group reduced their training to one session while the volume of training did not change.

Control group: This group had no training for two weeks.

After two weeks of training program the subjects in all three groups were taken the same test as the pre-test. To compare and describe the performances of all groups, a paired T-student and a one-way variance analysis (P<0.5) as well as a Tookey test were used.
Comparing the effect of two reduced training programs volume and frequency

**Results**

The results of paired t-test indicated that reduced training volume and frequency of training had no effect on muscular strength and flexibility. The one-way variance analysis and Tookey test also indicated that reduced training volume and frequency groups showed no difference regarding strength while strength in both groups was more than the control group. Flexibility was higher in reduced training volume group than both reduced training frequency and control group whereas it was the same in control group and reduced training frequency group (table 1).

**Table 1** Compare the flexibility and strength in experimental and control groups (MD±SD)

<table>
<thead>
<tr>
<th>Variable Groups</th>
<th>Strength ( MD ± SD)</th>
<th>Flexibility ( MD ± SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pre-test</td>
<td>post-test</td>
</tr>
<tr>
<td>Reduced training volume</td>
<td>58±3.88</td>
<td>58±3.68</td>
</tr>
<tr>
<td>Reduced training frequency</td>
<td>57.8±1.61</td>
<td>58.1±2.02</td>
</tr>
<tr>
<td>Control</td>
<td>57.3±3.03</td>
<td>53.7±3.2</td>
</tr>
</tbody>
</table>

**Figure 1** Compare pre and post test of strength in groups
Figure 2 Compare and post test of flexibility in group

Conclusion

The results show that two weeks reduced training had no significant effect on the subjects’ muscle strength. This was in line with Houmard et al (1990) who discussed that the volume of testosterone and cortisol are not influenced by training reduction, and since testosterone increases skeletal muscles growth and retains muscle protein that causes hypertrophy during exercising (13), it can be closely related with muscle strength. This was in contrast with Fox & Mathews who stated that reducing training volume can increase muscle strength (8). This may be due to the point that the subjects in that research were only doing strength trainings using weight whereas in the present study the subjects were doing volleyball-related trainings.

The data analysis indicates that reducing training volume had no significant effect on elite volleyball players’ flexibility. As the number of training sessions in reduced training volume did not change and flexibility trainings in early stages included some warm-up; and also due to the point that regular moving trainings retain flexibility (2), flexibility did not change during two weeks of reduced training. The data analysis shows that two weeks of reduced training frequency had no significant effect on elite volleyball players’ muscular strength, and this is in line with Tucci et al’s (1992) results, which indicate that the power of lumbar extensors can be retained for 12 weeks if the training is reduced for one session during four weeks provided that the volume and intensity of training is not changed (19). This is also in line with Graves et al (1988) and Neufer et al (1987) who stated that the reduced training frequency has no effect on muscular strength (9, 17), and is against Costill et al (1985) who stated that reduced training increases strength (3). This may be due to the point that their research was on elite swimmers whereas the present study is on elite volleyball players. Diallo et al (2001) also concluded that training reduction retains the
Comparing the effect of two reduced training programs volume and frequency

effects including strength and resistance obtained through performing polio metric trainings (6).

The data analysis shows no significant effect on elite volleyball players’ flexibility as a result of reduced training. This may be due to not controlling the athletes’ daily activities in this research since most daily activities such as sitting, standing up, and other movements involve movement in pelvis joint; and flexibility in this area can be retained despite having one training session every two weeks. The data analysis shows no change in muscle strength between reduced training volume and frequency. Control group’s strength was also less than that of experimental group. Along with Hortobagy and et al’s (1992) research, the present research shows that eccentric strength and the size of muscle fibres decrease during two weeks due to having no training (12). Graves et al (1988) found that isometric strength decreased 61% during 12 weeks of having no training (9). Mujika & Padilla (2000) found out that strength decreased after 4 weeks of having no practice and concluded that reducing training volume can solve this problem and this supports the results of the present study (15). Mujika & Padilla (2001) found out that having no practice for 4 weeks is not that likely to lead to strength reduction but can decrease eccentric as well as isokinetic strength in advanced athletes (16). Ingle et al (2006) also came to the conclusion that lack of practice can fade away trainings done on power strength (14).

The results of the present study contradict Fox & Mathews’ findings that the strength obtained through 3-time trainings done 3 sessions per week is retained after 6 weeks of having no practice (8). The reason behind this may be that their subjects were only doing strength trainings whereas the subjects of the present study were doing trainings related to their own field. The results of the present research indicate increased flexibility in reduced training volume group in comparison with the other two groups who showed no change with regard to flexibility. Since retaining flexibility requires continuous practicing (20), it can be concluded that reduced training volume group who had three training sessions per week had more flexibility than reduced training frequency one who only training once a week.

Since many variables such as age, sex, inheritance, body type, the type and degree of physical activities, and the joint structure can affect flexibility; the present study can not strongly support the idea that reduced training volume has a better influence on flexibility than reduced training frequency. The present study suggests that reduced training volume promotes and retains physical fitness of elite volleyball players more than reduced training frequency; and athletes are advised to avoid detraining.

References


Comparing the effect of two reduced training programs volume and frequency


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Developmental phases for volleyball players

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Abstract

Volleyball is one of the most practiced sports in the world. Many people, especially children want to learn the volleyball techniques to better play and enjoy the game. However, to play in higher level many stages must be reached and several coaches have difficulties to understand how to better develop players during the years of preparation. This study is a suggestion of training ideas, which divide the evolution of volleyball players since the initiation throughout the adult level in four different phases. Each phase is divided into chronological period (age group). Every phase covers issues related with technical, tactical, physical and psychological parameters that are related to player’s ideal development in volleyball. Objectives are suggested in each phase that the player must reach to be prepared to carry through the transition for the next stage and to be conditional to act in competitions of adult level or higher level. Suggestions are made with the purpose of helping coaches to better prepare the practice and understand how players develop and transform from beginner’s volleyball player into a complete volleyball players over many years of practice. These details are completed with a construction of a theoretical framework pyramid that determines the general factors and aspects in the development of volleyball players for an advanced performance.

Keywords: Volleyball, Long-term player development (LTPD), Coaching

Introduction

Every year, a great number of children participate in recreational volleyball in squares, beaches, streets and houses, or in competitive volleyball, in schools, clubs and teams around the world. However, only some will reach high level or a level of international competition. Athletes who if detached for its talent when children or adolescents do not obtain, in the adult age, the same performance level that demonstrated in the beginner categories (Bojikian, 2002). This contradiction is not of easy explanation, but some factors assist in the agreement of this phenomenon; therefore they intervene deeply with the evolution process. Many coaches understand that the growth of the player in volleyball is intimately connected with the type and the quality of instruction that the athlete receives, since the basic education of daily pre-games until the high level. The great problem in the volleyball coaching however is to define which abilities and techniques must be used for each age level linked with the level of available ability. It is exactly to this point that this article covers: the development of volleyball players, since the initiation, through basic techniques, in connection with the tactics, the physical and the psychological parts that in ensemble, will provide the maximum development of the qualities the adult phase. In order to best nature these young player various training system have been developed. The author
created one of training system for players’ development according to his experience as a professional player and many years of experience as a coach and teacher for both genders in diverse levels in Brazil, United States and Saudi Arabia.

This training system had been divided into four chronological phases (age group). Each of which emphasize the most appropriate element for that particular age group. By careful analysis of the objectives for each phase, this training system can be applied in order to keep more of young players involved in the sport and help then to reach a higher level of performance. During each phase, learning and practice should be conducted according to didactics and training principles distributed over the period from 10 to 18 years old or until the moment that young players pass to adult category (Suvorov & Grishin, 1990). The technical training must be presented gradually from the evolution process, respecting the ages and the level of difficulties in each different phase of development. The complete player development must follow an expectancy plan; consequently the player evolution process is gradual following an ideal sequence with the knowledge and efforts (Cordeiro, 1997). This paper will provide a guide for basic analysis of methodical, pedagogical and psychological state of the athlete. This research will be show how the volleyball player will be prepared to play at a higher level. Will also determine how much time a player needs to prepare, to improve his/her technical, tactical, physical and psychological development so that a high level transition will succeed. This research will analyze the training stages around the eight years in the volleyball player’s development.

**Volleyball Players Competencies**

The volleyball player must have its development based on the ideal relation of four decisive competencies (factors): Techniques, Tactics, Physics and Psychological. Chart 1 presents the summary of the abilities that the volleyball player must construct during his/her development and serve a basis for the theoretical sequence of this article. Each of the abilities encloses situations that influence the learning and the complete development of the player. Moreover, each factor has its importance and the relation in its fullness between these factors will only give the perspective to determine the condition of a player to be or not apt to act in high level or the adult category.
A suggestion for a planning model is following which respects the four distinct phases of the progressive development for the volleyball players. The model is divided in four distinct phases that take in consideration the chronological age of the athlete and the years of experience in the sport. We must consider, that each player is different and the result of the level of improvement in each phase will be conditioned to many variables, such as: 1)
according to the “increasing speed” of each person; 2) a individual talent; 3) interest and desire to learn; 4) creative capacity; 5) Coach didactics and knowledge; and 5) the accumulated of total hours practice. This model below (Figure 1) is a suggestion for age and phases division and is applied for men and women players.

<table>
<thead>
<tr>
<th>PHASES</th>
<th>OBJECTIVE</th>
<th>AGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE I</td>
<td>Basic Development Phase</td>
<td>General development</td>
</tr>
<tr>
<td>PHASE II</td>
<td>Improvement Phase</td>
<td>Accomplish the fundamentals for future performances</td>
</tr>
<tr>
<td>PHASE III</td>
<td>Specialization Phase</td>
<td>Consolidation of all fundamentals</td>
</tr>
<tr>
<td>PHASE IV</td>
<td>Performance Phase</td>
<td>Reach the technical, tactical, physical and psychological peak</td>
</tr>
</tbody>
</table>

**Figure 1** Developmental phases for volleyball players

Following (Figure 2) are presented the four phases in distinct and summarized objectives to be completed. Objectives are placed according to the phase, and give the main point to accomplish in the program. From this idea, we determine the main abilities that the volleyball player must develop to play in different levels.
### Developmental phases for volleyball players

<table>
<thead>
<tr>
<th>Phases</th>
<th>I. Basic Development</th>
<th>II. Improvement</th>
<th>III. Specialization</th>
<th>IV. Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>Motivate children to play volleyball</td>
<td>Improvement to the simple techniques and learning a little complex techniques</td>
<td>Improvement to the individual techniques and tactics</td>
<td>Increase level previously get into</td>
</tr>
<tr>
<td></td>
<td>Acquire ability to basic techniques</td>
<td>Development of general physical conditioning</td>
<td>Train for position-specific fitness, technique and tactics</td>
<td>Develop a total dominion to the fundamentals and best of the tactics</td>
</tr>
<tr>
<td></td>
<td>Initiate to collective tactical</td>
<td>Teach the fundamentals tactics</td>
<td>Individualize the technical-tactical training</td>
<td>Increase a catch percentage in each fundamental</td>
</tr>
<tr>
<td></td>
<td>Develop a “team work” and respect to teammates, opposites and referees</td>
<td>Polish those skills further</td>
<td>Specific physical conditioning to volleyball</td>
<td>Train to maintain or improve all physical capacities</td>
</tr>
<tr>
<td></td>
<td>Fun and participation are most important</td>
<td>Add some complementary skills and abilities</td>
<td>Refinement to the specific technique details</td>
<td>Athletes model all aspects of training and performance</td>
</tr>
<tr>
<td></td>
<td>Play lots of modified games</td>
<td>Individualizing fitness and technical training and continue training for all positions</td>
<td>Consolidation to the techniques</td>
<td>Further develop all technical, tactical and playing skills</td>
</tr>
<tr>
<td></td>
<td>Knowledge of the basic rules</td>
<td></td>
<td>Variations: Service/jump-serve</td>
<td>Fine tune position-specific training &amp; capabilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New team techniques: Double and triple block</td>
<td>Fundamentals with maximum effectiveness</td>
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<tr>
<td></td>
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<td></td>
<td>Attack variations/Combinations</td>
<td>“Style Development” &amp; Players efficiency control</td>
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<td></td>
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<td>Rhythm techniques execution</td>
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<td>Different Techniques time and space relationship</td>
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<tr>
<td>Techniques</td>
<td>Teaching to the basic techniques mechanics</td>
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<td></td>
<td>Evolution process:</td>
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<td></td>
<td>Basic Position / Movement</td>
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<td></td>
<td>Overhead Pass</td>
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<tr>
<td></td>
<td>Reception and Forearm Pass</td>
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<td></td>
<td>Underhand Serve</td>
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<tr>
<td></td>
<td>Hitting</td>
<td></td>
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<tr>
<td>Basic techniques improvement</td>
<td>Introduce new techniques:</td>
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<tr>
<td></td>
<td>Overhead Service</td>
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<tr>
<td></td>
<td>Setting: All positions/jump set</td>
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<tr>
<td></td>
<td>Single/ Double Block</td>
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<td></td>
<td>Dive / Extension</td>
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<td></td>
<td>Defense</td>
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<tr>
<td></td>
<td>Hitting: Different shots to the different areas</td>
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<tr>
<td>Setter: Ability and creativity</td>
<td>Function determination: Passers/Setters</td>
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<td></td>
<td>Hitters: Outside/Middle/Opposite/Back Row</td>
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<td></td>
<td>Blockers: Outsides/Middle/Blockers</td>
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<td></td>
<td>Defense</td>
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<td>Specialists/Libero</td>
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<td></td>
<td>Best motor answer choice</td>
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<td></td>
<td>Begin advance tactical training</td>
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<td></td>
<td>Team formation and tactical combinations</td>
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<tr>
<td></td>
<td>Complete game system: Reception System</td>
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<tr>
<td>Digging: Advance defensive techniques/target Setting: Best options/reertoire Hitting: Mixture of shots/Attacking style Serving: Develop a complete tactical and technical repertoire of serves Blocking: Develop a complete tactical and technical repertoire of blocks Adjust to different passing systems Capacity to read game situations: offensively and defensively Perfect combination and synchronization with attack and defense</td>
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<tr>
<td>Tactics</td>
<td>Introduce simple tactics</td>
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<td></td>
<td>Court Movements</td>
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<td></td>
<td>Basic Formation</td>
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<td></td>
<td>Team Tactics (Basic System)</td>
<td></td>
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<td></td>
<td>Attack and Defense</td>
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<td></td>
<td>Basic Rules</td>
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<td></td>
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<tr>
<td>Individual: Analysis and Perception, Opposite Situation Team: Basic system formation to attack and defense Serve-reception formation</td>
<td>Attack Systems/Counter-Attack System Block System/Defense System Attack-Cover System Volleyball with correct application to the techniques and tactics Different answers to the same tactical situation Teammate cooperation and synchronization Pre-game system preparation Serving: Best Choice for the circumstances Total domain to defensive and offensive combinations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Developmental phases for volleyball players

<table>
<thead>
<tr>
<th>Game Skills</th>
<th>Physical</th>
<th>Psychological</th>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Games: Mini-volley (1x1),(2x2),(3x3),(4x4)</td>
<td>Proper running and jumping</td>
<td>Introduce mental training techniques</td>
<td>Effective communication of coaches and players</td>
</tr>
<tr>
<td>Experience the fun of using volleyball skills in game situation</td>
<td>Development of aerobic and anaerobic resistance, agility, flexibility, velocity, and reaction time. Resistance training, plyometrics and stretching</td>
<td>Prepare players to learn the values of winning and losing</td>
<td>Play the mental chess game of volleyball</td>
</tr>
<tr>
<td>Use all six (6) fundamental skills</td>
<td></td>
<td>Definition of “teamwork”</td>
<td></td>
</tr>
<tr>
<td>Transitions to the regular volleyball</td>
<td></td>
<td></td>
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<tr>
<td>Volleyball game system</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Referring to learn the rules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation in competitions (educational objectives)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive level of participation</td>
<td>Physical capacity development to use specifically in volleyball</td>
<td>Plot a career objectives</td>
<td>Begin social and team dynamics training</td>
</tr>
<tr>
<td>Identification and understanding of the game system of the players</td>
<td>Plyometrics and drills to improve speed</td>
<td>Maintain excellent performance under pressure</td>
<td>Attain a broadened understanding of the game</td>
</tr>
<tr>
<td>Knowledge about the rules</td>
<td>Develop greater stretch, limb velocity and power</td>
<td></td>
<td>Use advance cognitive, technical and tactical skills</td>
</tr>
<tr>
<td>Different preparation to each match and competition</td>
<td>Perfect conditioning to abide hard practice/match</td>
<td></td>
<td></td>
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</tbody>
</table>
The ways to work in practice in each age phase with the objective of athlete’s development for the adult level must follow an efficient methodology. Beyond efficient, the methodology must respect the natural evolution of children/adolescents. Principles of physical activity and training, global education, preoccupation with security, as well as coach and parents “patient”, must be contained in the day-by-day of the formative work.

Modern volleyball requests a long-term process for an ideal players’ growth. This process has to follow principles of respect and ethics to prevent burn stages in the name of premature results. Stages have to be gradually worked and materialize the structural base for future players, being this a support for afterwards training demand.

Making use of the described definitions in this paper and of the points to be observed for each stage of the development, we can suggest and summarize that a volleyball player, in its development, suffers action from many factors. These factors can be classified as more or less important and can limit or amplify the ideal development for an advanced performance. Moreover, construct the bases for an evolutionary pyramid, which every step serves of stage in the construction of the next step. Each factor constructs a complete athlete, which possess all the previous characteristics to be able to play in the highest level. The factors to be observed, without considering the specific techniques of the sport and that they must be advanced, and the stages to be constructed are described next and summarize the most important points for this paper.

**Figure 2** Objectives and four phases of players’ development

### Conclusions

Sessions

<table>
<thead>
<tr>
<th>3-12 training session for every 1 competition</th>
<th>Sessions about 60-120 minutes long</th>
<th>6-9 per week training sessions specifically for volleyball</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12 training session for every 1 competition</td>
<td>Sessions about 60-180 minutes long</td>
<td>6-12 training session for every 1 competition</td>
</tr>
<tr>
<td>3-6 general fitness training sessions per week</td>
<td>4-6 weeks general fitness training session /week</td>
<td>4-6 general fitness training sessions per week</td>
</tr>
<tr>
<td>9-15 per week training sessions specifically for volleyball</td>
<td>6-9 per week training sessions specifically for volleyball</td>
<td>6-9 training sessions for every one (1) competition</td>
</tr>
<tr>
<td>Sessions about 60 minutes</td>
<td>Sessions about 60-150 minutes duration</td>
<td>Sessions about 60-150 minutes duration</td>
</tr>
<tr>
<td>4-6 general fitness training session per week</td>
<td>4-6 weeks general fitness training session /week</td>
<td>4-6 weeks general fitness training session /week</td>
</tr>
<tr>
<td>Two (2) volleyball specific training sessions per week</td>
<td>6-9 per week training sessions specifically for volleyball</td>
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</tr>
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<td>6-9 per week training sessions specifically for volleyball</td>
</tr>
</tbody>
</table>
Coaches must guide their athletes with long-term objectives. Many coaches are not aware of the principal objective of juvenile sport and the importance of favorable conditions necessary for athletes to reach the international level (Fillin1996). Situations where the players looking for technical, tactical or physical refinement, must have relevance and be stimulating so that the athletes development will be positive and interesting. The coach has a very important part in the early phases of development. It is his responsibility to encourage young players and to develop a gradual evolution process, which acknowledges the particularities in each phase.

The sports initiation must be simple manner. The demand level must be compatible with the initiating capacity. The coach should strive to follow the recreational way, so that initiation is pleasure and makes it more fun to play volleyball. Suvorov & Grishin (1990) suggest the essential finality of the sports preparation in beginners is a gradual sport focusing in the ability of approach in appropriate ages. The player’s development and evolution should be guided by an understanding of the natural evolution phases. Every coach’s decision should first reflect the best interest of athletes, and second, the desire to win. Helping young people to develop physically, psychologically, and socially will always be more important objective eliminating stressing and encouraging participation for fun, and skill development. For players to evolve quality technique, it is necessary for initial training to be fun and
challenging. This evolution must be positive, eliminating any negative interference. This evolution must be dominated by initial training.

Age is an important factor in determining when the transition should take place. If the player reaches high level too early, it may decrease the career life of the volleyball player. Even a skillful player may not have the psychological preparation to play at a high level. Thus the player may burn out before reaching his highest levels of play. The preparation process for volleyball players is a continuing process. However, in a majority of cases, after 8 to 10 years of preparation, the volleyball player is prepared to play in high level of competition. According to these facts, as well as the statistics from the FIVB (2001), we can conclude that the volleyball player should be ready to play high competition level at the age of 21 years old for men, and 19 years old for women, although exceptions may exist. The research introduced a new option for player development and will help coaches to create better programs while making the most of talent for future players. In addition, there is greater potential success for younger players. However, every player is different and the improvement results each phase and volleyball level will advance more quickly or slowly could be a variation, depending individual talent, and desire to learn, and total time of practice.

References


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The effect of aerobic training with increasing chest wall movement resistance on ventilatory efficiency and pulmonary functions in untrained males

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Tarbiat Moallem University, Iran

Abstract

This study aimed to evaluate the effect of aerobic training with increasing chest wall movement resistance on ventilatory efficacy and pulmonary functions in untrained university students. Eighteen untrained healthy male university students were volunteered to participate in this study and were divided in two experimental groups. They performed aerobic training with 70 – 80% of HRmax, 3 day a week for 4 weeks. Chest wall restriction (CWR) group (height=176.33±4.35cm, weight=72.64±9.53kg and VO2max=42.29±5.46ml/kg/min) performed aerobic training with fastening elastic strap on chest wall but non-chest wall restriction (NCWR) group (height=173.88±4.31cm, weight=70.55±11.12kg and VO2max=42.68±2.51 ml/kg/min) performed aerobic training solely. The elastic strap resistance was limited 10% of each subject's forced vital capacity (FVC). Cardio-respiratory functions were measured via an automated pulmonary function/metabolic gas exchange system. To analyze data, dependent and independent t student test was used. Results of independent t test shown significant difference between pre and post-test of VE/VO2, VE/VCO2, VEmax and MVV in CWR and VE/VCO2, VEmax, ¬MVV in NCWR (P<0/05). NO significant difference was observed in other variables of two groups. Dependent t test also shown that chest wall restricting with elastic strap during aerobic training(CWR) had statistically more effect on VEmax, MVV and VE/VO2, but had not statistical effect on VE/VCO2, FVC, FEV1/FVC, ¬MVV in NCWR. Generally, the results of this study shown that use of elastic strap for enforcement of respiratory muscle during aerobic training had greater effect on ventilatory efficiency and some of pulmonary functions in short term compared to aerobic training solely.

Keywords: Aerobic training, resistance, Males

Introduction

Cardiovascular adaptations to variant exercise training were known in different studies (1). For example, it is obvious that endurance training with enough volume and intensity caused to adaptive effects on heart structure an function(2,3), blood volume and components(4) and vascular structure and function(5).Moreover, it seems respiratory system has important role in exercise training adaptation. Therefore, several studies had accomplished on this system and its adaptation to exercise training (6,7,8,9). Important role of respiratory muscle have been caused that, a lot of efforts have been devoted to find specific respiratory muscle training methods. For example, in some studies tried to induce...
overload on respiratory muscle with elastic straps (10,11). In this basis, Fast et al (2006) indicated that chest wall restricting with elastic strap at rest improves VO2max in healthy subjects (12). Amontte et al (2005) also showed that respiratory muscle training (RMT) with Power Breath in triathlon and marathon runners increases maximal ventilation (VEmax), maximal tidal volume (VTmax) and decreases breathing frequency significantly during maximal exercise, but hadn’t significant effect on VO2max and pulmonary functions (12). Farmer et al (2006) also revealed that chest wall restricting increases aerobic power but hadn’t significant effect on some of pulmonary functions (FVC, FEV1, PEF, ) in healthy subjects(10).

Amount of ventilation required for exertion of metabolic CO2 (e.g. ventilatory efficiency) is one of the important challenges during exercise. Mathematically, relationship between ventilation (VE) and CO2 output determines by arterial CO2 pressure and physiologic dead space to tidal volume ratio (VD/VT) (13). However VE to VCO2 ratio (VE/VCO2) in lactate threshold (LT) or low value of this ratio considered as noninvasive index of ventilatory efficiency in scientific society (14). For example, Xing et al (2002) after studying on 474 healthy subjects ranging from 17 to 74 year stated that VE has high correlation with VCO2. Hence VE/VCO2 can be used as a indicator of ventilatory efficiency (14). Caiozzo et al (1987) revealed that ventilatory and pulmonary functions were changed during exercise (15). Ceugnet et al (1995) also showed that ventilatory control of breathing in exercising asthmatic subjects decreases VE/VO2 and VD/VT, but didn’t significant effect on VO2/HR (16). Fuji and colleagues (2002) evaluated the effect of chest wall vibration on dyspnea during exercise in chronic obstructive disease. Results showed that this intervention increases body oxygen consumption (VO2) but decreases VE/VO2 and breathing frequency (17).

However, there aren’t agreements among scientists about the effects of chest wall restricting and few studies evaluated the effects of this training method in healthy subjects (18). Moreover, the chronic effect of this training intervention with aerobic training on ventilatory efficiency doesn't study yet. Hence, using this training intervention is somewhat simple and applicable in order to attain further adaptation in training. This paper is trying to determine the effects of chest wall restricting using elastic strap during aerobic training on ventilatory efficiency and pulmonary functions in healthy subjects.

Methodology

Subjects, Locale, Equipments and Protocols

This study was approved by physical education faculty of Tarbiat Moalem University and accomplished in Iran National Olympic Academy. Eighteen untrained healthy male student ranging in age from 19 to 27 year was volunteered to participate in this study. They randomly divided to two groups, chest wall restriction (N=9) and Nonchest wall restriction (N=9). Chest wall restriction (CWR) group accomplished aerobic training (running with 70 to 80% HRmax) using wearing elastic strap on chest wall and Non-chest wall restriction (NCWR) group performed aerobic training alone. Their characteristics in light of age, height, weight, and body fat was listed in table 1. Aerobic training protocol was performed 4 week, 3day/wk and 30 min per session. Automated pulmonary function/metabolic gas exchange
The effect of aerobic training with increasing chest wall movement resistance on ventilator efficiency

system (Model K4B2, Cosmed CO, Italy) was used to measuring gas exchange and pulmonary functions. These measurements were done during performing Bruce protocol on treadmill.

**Table 1** Characteristics of subjects.

<table>
<thead>
<tr>
<th>Group</th>
<th>CWR</th>
<th>NCWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>25± 2.59</td>
<td>25.88± 2.52</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>176.33± 4.35</td>
<td>173.88± 4.31</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>72.64± 9.53</td>
<td>70.55± 11.12</td>
</tr>
<tr>
<td>Fat (%)</td>
<td>19.10± 6.18</td>
<td>20.60± 6.87</td>
</tr>
<tr>
<td>Body mass index (kg/m^2)</td>
<td>23.35± 3.05</td>
<td>23.02± 4.91</td>
</tr>
</tbody>
</table>

**Measurements**

A pilot study was performed to determining resistance of elastic strap (reducing 10% of subjects FVC) before start of training program. Then, tow day before starting training program body composition, spirometric factors and gas analyzing was done (pre test) and after training period this values measure (post test) in same time of day.

**Statistical analysis**

SD± Microsoft office 2007, SPSS 15 software was used. All values reported as means and p values less than 0.05 was considered significant. Descriptive statistics was used to analyzing age, weight and other characteristics of subjects. Comparisons in the same subjects used paired, 2-tailed t test and comparisons between groups used independent, 2-tailed t test.

**Results**

As showed in table 2, VE/VO2, VEmax, MVV and VE/VCO2 had statistical increase in CWR group (P<0.05), but changes in FVC, FEV1/FVC, VO2/HR, VD/VT and respiratory frequency wasn’t significant (P>0.05). Results in NCWR group showed that VEmax, VE/VCO2 and MVV had statistical increase, but increase in other variables wasn’t investigated.

However, the purpose of this study was investigation of difference in two groups after training. Comparisons of two groups showed statistical difference in VEmax, MVV and VE/VO2 (P<0.05), but in other variables this difference wasn’t observed.
Figure 1. Comparison of groups in VE/VCO2  
Figure 2. Comparison of groups in VE/VO2  
Figure 3. Comparison of groups in VO2/HR  
Figure 4. Comparison of groups in VD/VT
The effect of aerobic training with increasing chest wall movement resistance on ventilator efficiency

<table>
<thead>
<tr>
<th>Group</th>
<th>CWR</th>
<th>NCWR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>post</td>
</tr>
<tr>
<td>VE/VCO₂</td>
<td>38.00 ±5.02</td>
<td>36.33 ±4.38</td>
</tr>
<tr>
<td>VE/VO₂</td>
<td>46.88 ±2.75</td>
<td>42.00 ±4.21</td>
</tr>
<tr>
<td>VO₂/HR</td>
<td>14.87 ±2.53</td>
<td>15.30 ±2.68</td>
</tr>
<tr>
<td>VD/VT</td>
<td>0.18 ±0.03</td>
<td>0.19 ±0.02</td>
</tr>
<tr>
<td>Rf (b/min)</td>
<td>44.58 ±5.74</td>
<td>41.88 ±5.59</td>
</tr>
<tr>
<td>VEmax (l/min)</td>
<td>125.93 ±24.08</td>
<td>153.74 ±20.02</td>
</tr>
<tr>
<td>MVV (l/min)</td>
<td>136.83 ±19.30</td>
<td>146.96 ±18.81</td>
</tr>
<tr>
<td>FVC (l)</td>
<td>3.92 ±0.53</td>
<td>4.03 ±0.53</td>
</tr>
<tr>
<td>FEV₁/FVC (%)</td>
<td>98.02 ±2.31</td>
<td>93.51 ±6.32</td>
</tr>
</tbody>
</table>

**Figure 5** Comparison of groups in VEmax  
**Figure 6.** Comparison of groups in MVV
Table 2 Results of statistical analysis in intra and inter group comparisons of dependent variables.

<table>
<thead>
<tr>
<th>Group</th>
<th>CWR</th>
<th>NCWR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>post</td>
</tr>
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<tr>
<td>FEV₁/F VC(%)</td>
<td>98.02 ±2.31</td>
<td>93.51 ±6.32</td>
</tr>
</tbody>
</table>

Discussion

Physiologists believe that VE to VCO2 ratio (e.g. ventilatory CO2 equivalent) is a non-invasive estimate of ventilatory efficiency. In this study this factor didn’t increase in CWR group compared to NCWR group significantly, but had increase in both group somewhat and significant increase in CWR group. Factually, VE/VCO2 ratio has little variability compared to VE/VO2. This issue results from ventilatory control system sensitivity to paCO2 and arterial PH in physiological range. Moreover, VE/VO2 has change just after lactate threshold (LT) during graduate exercise test, but VE/VCO2 is constant several minute after LT (19). Oxygen pulse (VO2/HR) is considered as an index of cardiopulmonary efficiency. In this context, the more VO2 of body between the two continuous pulses, the more cardiopulmonary efficiency in oxygen supply to exercising muscle (14).
The effect of aerobic training with increasing chest wall movement resistance on ventilator efficiency

Died space volume to tidal volume ratio (VD/VT) has important role in changes of VE/VCO2 (20). This index don't seems to change by training in healthy subjects, but Ceugneit et al (1995) revealed that this ratio was changed after specific respiratory training in asthmatic subjects (16). It's showed that some of pulmonary functions can be improve by specific respiratory training. It seems that improving this factors results from increase in strength and endurance of respiratory muscles and decrease of perceived respiratory effort (21). With respect to the fact that MVV known as an index of respiratory muscle endurance (22), we can conclude this training intervention might caused to improve respiratory muscle endurance of untrained subjects. Maximal voluntary ventilation (MVV) determines with tidal volume and breathing frequency, but its unobvious that this component can be changed with training or no.

Summary, it seems that the effects of chest wall restriction is results from decrease in breathing work and metabolic and blood supply requirements of respiratory muscle. This training intervention can be used to speedup part of adaptations of aerobic training at beginning of exercise program in untrained people.

References


The effect of aerobic training with increasing chest wall movement resistance on ventilator efficiency

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SECTION 5: Contemporary Games Teaching
Access to physical education activities of girls with visual impairments in Pakistan

Humara Bano1 and Abdul Hameed2
1University of the Punjab, Pakistan, 2University of Management and Technology, Pakistan.

Abstract

The importance of physical education and activities for proper growth of girls with visual impairment is hardly overemphasized. Access to appropriate physical education and activities is necessary for their growth and protection against other health problems. The quality of physical education and activities in school for children with visual impairment is not comparable with their peers studying in ordinary schools. Both the quality of teachers and equipment available in special school are substandard. Moreover, the school agenda has very low priority for such important program. The girls are doubly discriminated because of being disabled and being female. This study was conducted to document the perceptions of the girls with visual impairment about the access and quality of services of physical education and activities in special schools. Data collection was based on an interview schedule conducted with the help of trained interviewers. The result of the study indicates that there is huge disparity on the basis of gender and disability in lieu of access and quality of physical education and activities.

Keywords: Visually impaired girls, Physical education, Quality, Pakistan

Introduction

Physical education is the only way to keep a person healthy and mentally alert. The opportunities for imparting physical education and facilities to implement it are the main requirements to promote physical education activities. Moreover, equal participation of male and female is a key to make it successful. It is usually assumed that boys have more physical strength as compared to girls. However, the matter may not be the same particularly when men and women with disabilities are seen as an essential part of humanity. Moreover the diversity in liking and disliking of a specific sport may further complicate the matter. Specifically the participation of blind girls with visual impairment may raise some cultural issues. The form of physical education activities may vary from culture to culture with regard to its traditions, values and available provisions. Physical education may be a dream a possible experience for children without sight.

“Physical education class is a joke." My sighted son's lament about his regular physical education class in high school is no comfort to me when I consider the sad state of physical education for blind kids in this country” (Ross,J.1991,p.1).
The parents of the children with visual impairment frequently fail to encourage their children to take part in the physical activities on the premises that they will be injured or will be on risk without realizing the value of physical education for health and physical fitness. The school of the children with blindness should reach out to the parents in order to make them realize that the children with visual impairment do need for good health, entertainment and joy. Parents should join clubs and organizations to bring their children to these places. They should make every effort for their children with visual impairment, to include them in PE activities so that they may not miss such an important aspect of life and learning. Specifically, for girls, they need to be more conscious about their participation in physical education particularly in games.

Physical education and sports activities are considered non-academic and are frequently replaced by academic subjects in Pakistan. In this way physical education and sports activities are placed on second priority. The Department of Culture, Media and Sports in UK, reports:

“Physical Education is replaced for extra literacy, numeracy and science work. Visually impaired children in mainstream schools are missing PE in order to keep up with their sighted peers” (dcms, 2000).

Another study conducted by Mastro (1991) highlighted the importance of participation of blind students in sports. They believe that physical education can be very beneficial for children with visual impairment if the teachers follow a common sense and perceive them normal like their normal peers. (p.1)

Arruda (1991) said, “Activities of daily living (ADL) are daily routine actions that play a prominent role in the lives of blind children” (P.1).

The participation of girls with or without visual impairment in different social activities such as physical activities are not much appreciated. In a study Pierce (1997) highlighted the status of blind women in social activities as;

“As blind girls approach adolescence, the social problems they face multiply and become more complex, and a solid foundation of social skills established in childhood becomes ever more important” (p.1).

The situation of the girls with visual impairment is not much different in Pakistan. Specifically with regard to their participation in the physical education activities, recreational activities and social gatherings etc., girls with visual impairment are generally ignored. The system is segregated and access to physical education in special schools is extremely low. Very little attention so far has been given to them with regard to their body needs. Few games are introduced for their leisure like Ludi, Dholak (folk dance), or singing. Most of the time they participate in those games which are indoors and do not require physical interaction with male. The school facilities are not supportive neither physical education curricula is developed to meet the feminine needs of girls with visual impairment (blind or low vision). In this study the efforts have been made to highlight the existing conditions of girls with visual impairment with reference to the quality of their physical education.
Objective of the study:

The main objective of the study was to explore the perceptions of girls with visual impairment about the existing physical education services and facilities available in special schools in Pakistan.

Questions of the study:

The question of the study was what are the perceptions of girls with visual impairment about the existing physical education services and facilities available in special schools in Pakistan?

Data Collection

The data was collected from different special schools, colleges, universities and work places by using convenient sampling on an interview schedule. The answers of the respondents were coded as “Agreed”, “Disagreed” and “Undecided” and were analyzed by using SPSS.

Data Analysis and Results

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statement</th>
<th>Agreed in %</th>
<th>Disagreed in %</th>
<th>Un-decided in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Girls with visual impairment do need physical education</td>
<td>94.1</td>
<td>5.9</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Trained teachers are hired for the PE of girls with V.I.</td>
<td>58.8</td>
<td>38.2</td>
<td>2.9</td>
</tr>
<tr>
<td>3</td>
<td>There are separate classes of sports for girls with V.I.</td>
<td>26.5</td>
<td>73.5</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Curriculum for the building of female body structure is taught to girls with V.I.</td>
<td>5.9</td>
<td>88.2</td>
<td>5.9</td>
</tr>
<tr>
<td>5</td>
<td>Curriculum of PE is introduced for the development of the physical posture of girls with V.I.</td>
<td>5.9</td>
<td>94.1</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Girls with V.I enjoy PE facilities similar to that of sighted girls</td>
<td>32.4</td>
<td>61.8</td>
<td>5.9</td>
</tr>
<tr>
<td>7</td>
<td>Girls with V.I. have fewer sports opportunities than V.I. boys</td>
<td>66.6</td>
<td>26.95</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>There are comparable opportunities for the girls with visual impairment to join the profession as PE experts to V.I. boys</td>
<td>41.2</td>
<td>58.8</td>
<td>0</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>9</td>
<td>Male teachers can be appointed for the PE of girls with V.I.</td>
<td>32.4</td>
<td>61.8</td>
<td>5.9</td>
</tr>
<tr>
<td>10</td>
<td>Trained female teachers are hired for the PE of girls with V.I.</td>
<td>47.1</td>
<td>52.9</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>I feel that my PE training is not up to mark</td>
<td>76.5</td>
<td>20.6</td>
<td>2.9</td>
</tr>
<tr>
<td>12</td>
<td>PE Training is imparted to maintain graceful physical posture of girls with V.I. in schools</td>
<td>5.9</td>
<td>94.1</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>Even the idea of PE scares me</td>
<td>38.2</td>
<td>61.8</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>I play “Ludi” a girl dance on wedding parties</td>
<td>44.1</td>
<td>55.9</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>I lost my interest in PE as I started entering into adulthood</td>
<td>38.2</td>
<td>61.8</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>PE starts loosing its significance with aging</td>
<td>32.9</td>
<td>64.7</td>
<td>2.9</td>
</tr>
<tr>
<td>17</td>
<td>All girls with V.I. are given opportunities to participate in physical activities like the boys with V.I.</td>
<td>38.2</td>
<td>58.8</td>
<td>2.9</td>
</tr>
<tr>
<td>18</td>
<td>Girls with V.I. receive PE at each grade level like sighted girls</td>
<td>44.1</td>
<td>50.0</td>
<td>5.9</td>
</tr>
<tr>
<td>19</td>
<td>Revolutionary changes are required in the field of PE for VI girls</td>
<td>94.1</td>
<td>5.9</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>I strongly wish that the PE should be of high quality for VI girls.</td>
<td>97.1</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>Girls with visual impairment do need physical education</td>
<td>94.1</td>
<td>5.9</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>Trained teachers are hired for the PE of girls with V.I.</td>
<td>58.8</td>
<td>38.2</td>
<td>2.9</td>
</tr>
<tr>
<td>23</td>
<td>There are separate classes of sports for girls with V.I.</td>
<td>26.5</td>
<td>73.5</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>Curriculum for the building of female body structure is taught to girls with V.I.</td>
<td>5.9</td>
<td>88.2</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Curriculum of PE is introduced for the development of the physical posture of girls with V.I.</td>
<td>5.9</td>
<td>94.1</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>Girls with V.I enjoy PE facilities similar to that of sighted girls</td>
<td>32.4</td>
<td>61.8</td>
<td>5.9</td>
</tr>
<tr>
<td>27</td>
<td>Girls with V.I. have fewer sports opportunities than V.I. boys</td>
<td>66.6</td>
<td>26.95</td>
<td>5.9</td>
</tr>
<tr>
<td>28</td>
<td>There are comparable opportunities for the girls with visual impairment to join the profession as PE experts to V.I. boys</td>
<td>41.2</td>
<td>58.8</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>Male teachers can be appointed for the PE of girls with V.I.</td>
<td>32.4</td>
<td>61.8</td>
<td>5.9</td>
</tr>
<tr>
<td>30</td>
<td>Trained female teachers are hired for the PE of girls with V.I.</td>
<td>47.1</td>
<td>52.9</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>I feel that my PE training is not up to mark</td>
<td>76.5</td>
<td>20.6</td>
<td>2.9</td>
</tr>
<tr>
<td>32</td>
<td>PE Training is imparted to maintain graceful physical posture of girls with V.I in schools</td>
<td>5.9</td>
<td>94.1</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>Even the idea of PE scares me</td>
<td>38.2</td>
<td>61.8</td>
<td>0</td>
</tr>
<tr>
<td>34</td>
<td>I play “Ludi” a girl dance on wedding parties</td>
<td>44.1</td>
<td>55.9</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>I lost my interest in PE as I started entering into adulthood</td>
<td>38.2</td>
<td>61.8</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>PE starts loosing its significance with aging</td>
<td>32.9</td>
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<td>0</td>
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<td>97.1</td>
<td>2.9</td>
<td>0</td>
</tr>
</tbody>
</table>
Findings of the study

Table above clearly indicates that:

1. There is a dire need of physical education for girls with V.I.
2. Trained teachers are seldom hired for PE of girls with V.I.
3. There are no separate sport classes for girls with V.I. (Segregated classes for boys and girls is a norm of the society)
4. The PE curriculum is not suitable for body needs of the girls with V.I.
5. Curriculum for the development of the physical posture of girls with V.I. is not introduced.
6. Facilities for PE of girls with V.I. are not at par with sighted girls.
7. There is a disparity on sports opportunities available between girls and boys with V.I.
8. The opportunities to join PE as a profession is not comparable among girls and boys with V.I.
9. Girls with V.I. do not like male teachers for PE for them.
10. Trained female teachers are not frequently hired for their PE of the Girls with V.I.
11. The PE training is sub-standard for the girls with V.I.
12. PE Training is not imparted to maintain graceful physical posture of girls with V.I in schools.
13. Even the idea of PE is scaring for a reasonable number of girls with V.I.
14. A girl dance “Ludi” is popular among a reasonable number of girls with V.I.
15. The girls with V.I. keep taking interest in PE even their adulthood.
16. Aging has no effect on PE as viewed by the girls with V.I.
17. The participations of girls with V.I. in physical activities are limited as compared to boys with V.I.
18. Girls with V.I. do not receive PE at each grade level like sighted girls.
19. PE for V.I. girls needs restructuring.
20. The quality of PE for girls with V.I. girls should be of international standard.
Access to physical education activities of girls with visual impairment in Pakistan

Conclusion

The PE for girls with V.I. is substandard in terms of its curricula and instruction. The teachers are not properly trained as no teacher’s training is available for this purpose in Pakistan. The current PE practices neither match the physical needs of the girls with V.I. nor, they conform to the value system of the country.

Recommendations

Following recommendations are made on the basis of the findings of the study:

1. The needs of the appropriate PE for the girls with visual impairment should be assessed by using a large sample size.

2. The voices of girls with V.I. on their PE should be documented through a qualitative study in order to address their real PE needs.

3. The PE curricula should be restructured in line with the international trends.

4. Short training courses should be arranged across the country to meet the immediate needs of the PE of girls with V.I.

5. Girls with V.I. should be included in teacher training program of the P.E.

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Cited in the United Kingdom, Physical Education is included in our schools’ national curriculum criteria. In 2000, the Department for Culture, Media and Sport published a document called 'A Sporting Future for All' (dcms 2000).


Pierce, B. (1997). Reflections on the importance of socialization for blind girls and women.. Reprinted from the March-April, 1991 issue of the Feeling (Sports newsletter)


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Improving the quality of games teaching to promote physical activity

Phil Pearson and Paul Webb
University of Wollongong, Australia

Abstract

Teaching Games for Understanding (TGfU) was introduced in the 1980s and brought a new focus to the teaching of games. The participant is placed in a game situation where problem solving, decision-making and tactical understanding are vital ingredients. Another key ingredient is enjoyment to enhance and promote physical activity. In order to understand the factors that impact on the teaching of games that directly relate to a quality experience for the participant, the researchers surveyed 31 co-ordinators in the Australian Active After Schools Communities (AASC) program. This program is a structured physical activity program delivered nationally to children enrolled in Australian primary schools and Childcare benefit (CCB) approved out of Schools Hours Care Services (OSHCS) during the timeslot of 3.30-5.30pm. The program is designed to engage traditionally non-active children in structured physical activities and build pathways between local community organisations and sporting clubs. The ‘Playing for Life’ approach is based on the TGfU model that maximises participation and learning. The 31 coordinators consisted of 12 teachers, 2 Development Officers, 6 Sport Administrators and 11 coaches. The questionnaire addressed four areas: how the ‘Playing for Life’ approach in teaching games promoted physical activity; factors that enhance the teaching of games; factors inhibiting the teaching of games; and other strategies used in the teaching of games. Results indicate that a fun, innovative environment enhances the quality of physical activity. Other factors such as knowledge, resources and support that promote physical activity are also discussed.

Keywords: Physical activity, TGfU, Community

Introduction – Teaching Games for Understanding

TGfU places an emphasis on the play, where tactical and strategic problems are posed in a modified game environment, ultimately drawing upon players to make decisions. It places the focus on the player in a game situation where cognitive skills such as ‘tactics, decision-making and problem solving are critical…with isolated technique development utilised only when the player recognises the need for it’ (Webb & Thompson, 1998, p.1). There are other terms and variations of Bunker and Thorpe’s (1982) ‘teaching games for understanding’. Some of these include: ‘Game sense’ (ASC, 1999), ‘Play Practice’ (Launder, 2001), the ‘Games Concept Approach’ (Wright, Fry, McNeill, Tan, Tan & Schemp, 2001, cited in Light, 2003) and more recently, ‘Playing for Life’ (Australian Sports Commission, 2005). Each of these has subtle differences but all aim to develop tactical understanding as a
focus to skill development. Whilst some authors argue the contrary, TGfU can be used as a general term to cover the different models.

Research and observation of games teaching in Australian schools typically show a series of highly structured lessons based heavily on the teaching of technique (Ho, 2003; Light, 2003b; Turner, 1996; Pearson & Webb, 2005). This format generally divides the lesson into an introductory activity, a skill phase and finishes with a game. This traditional model has consistently revealed a large percentage of children achieving little or no success due to the emphasis on performance, skilful players who possess inflexible techniques and poor decision-making capabilities, players who are dependent on the teacher/coach to make their decisions, and a majority of children who leave school knowing little about games (Werner, Thorpe & Bunker, 1996). The transition from technique learning to game play is difficult for children without an understanding of how and when to use their skills (Turner, 1996).

Using the game of hockey as an example, it is important that the player first has an understanding the game, that the ball must be moved down field, with the intention of scoring a goal. An appreciation of the game might include a grasp of the concept of moving down the field individually or as a team whilst thwarting the opponent’s attempts to take control. One of many examples of tactics is passing to players on the wing to run the ball up field. Whether to have a shot at goals, or whether to pass to a player in a better position is where the skill of decision-making is required. Finally skill execution and performance is required to perform a flick shot to score in the top corner of the goals.

Teaching games for understanding is an approach to teaching games that makes very effective use of active learning in that the participants are learning through playing the games. Whilst the concept Teaching Games for Understanding (TGfU) has been around in the literature since the early 1980s, it was not introduced to the Australian sporting community at large until 1996, when Rod Thorpe from Loughborough University, England was brought out by the Australian Sports Commission (ASC) and conducted TGfU workshops around the country.

Given the decreased involvement of children in physical activity, TGfU is aimed at encouraging children to become more tactically aware and to make better decisions during the game. As well, it encourages children to begin thinking strategically about game concepts whilst developing skills within a realistic context and most importantly, having fun. Essentially by focusing on the game (not necessarily the ‘full’ game), players are encouraged to develop a greater understanding of the game being played. Thomas (1997) states that the desired effect of this is ‘players/students who are more tactically aware and are able to make better decisions during the game, thereby adding to their enjoyment of playing the game’ (p.3). Research by McKeen, Webb and Pearson (2007) support the increased enjoyment of students exposed to the TGfU approach compared to traditional teaching of games. TGfU has been shown to result in improved learning outcomes for students. Games are a significant component of the physical education curriculum, with research suggesting that ‘65 per cent or more of the time spent in physical education is allotted to games’ (Werner et al, 1996, p.28).
Since Thorpe’s visit to Australia in 1996, many sporting authorities (for example, Australian Sports Commission, Australian Touch Association, Australian Football Federation, Australian Rugby Union), universities and state education bodies have promoted the TGfU approach via professional development and accreditation courses over the last decade. Teaching and coaching resources have been developed and continually updated. A number of tertiary institutions across the country involved in physical education and sports coaching incorporated TGfU concepts into their curricula. The concept of TGfU has now been written into NSW secondary school syllabus documents (Board of Studies, 2003). The teaching of games has moved towards a TGfU framework. This change has implications for practicing teachers in relation to both the content and teaching strategies traditionally utilised in the teaching of games. The Active After Schools Communities program (AASC) launched in 2005, adopts a derivative of TGfU called ‘Playing for Life’ (ASC, 2005). Playing for life (PFL) has a strong emphasis on catering to all children and ability levels when teaching games. The game is the focus with the teacher/coach being a facilitator with players providing feedback to make the game more or less challenging (ASC, 2008).

The Active After-school Communities program

Active After School Communities (AASC) program is a national program that is part of the Australian Commonwealth Government’s $116 million Building a Healthy, Active Australia package. It provides primary aged school children with access to free, structured physical activity programs in the after school time slot of 3.30 pm to 5.30 pm. The program is designed to engage traditionally non-active children in physical activity and to build pathways with local community organisations, including sporting clubs (Australian Sports Commission, 2005). The AASC program was developed due to the increasing incidence of childhood obesity and sedentary behaviour in Australian children, the decline in time spent on physical education and sport in schools due to crowded curriculum, and a need to counteract societal changes which have impacted on the family’s ability to involve children in extracurricular activities. The AASC program commenced in Term 2, 2005 with over 1400 school and Childcare Benefit approved Out of School Hour Care Services. These numbers grew dramatically over the first year to 90,000 children across 1756 sites (primary schools and OSHCS) being involved (Australian Sports Commission, 2006). The aim was to have 150,000 children involved across 3250 sites by the end of 2007. This goal was achieved with 150,000 children participating in over 3,000 sites across Australia (ASC, 2008). At the end of 2007, the program received further funding for a further three years through to 2010.

The AASC program has a key aim of enhancing the physical activity of primary school aged children, particularly those who have been inactive. Another aim is to develop in children a love of physical activity that will encourage them to be active throughout their life. The approach assists coaches to provide structured physical activity programs that are fun, engaging, motivating, challenging, safe and which maximise participation and cater for all ability levels. A key component to the program is the Playing for Life (PFL) approach to coaching that is based on the TGfU approach. Like TGfU, PFL is an approach to coaching that is ‘game centred’ rather than the traditional ‘technique centred’ approach. Unlike TGfU, PFL activities are not necessarily designed with a specific sport in mind (although they can be) and they may also have a multi-skill, general physical activity focus. Playing for Life is an approach to coaching that uses games as the focus of development. By concentrating on
game-based activities, children are able to: ‘develop skills within a realistic and enjoyable context, rather than practising them in isolation and from a technical perspective. They become maximally engaged in dynamic game-based activities that use a fun approach to developing a range of motor skills’ (Australian Sports Commission, 2005, p.53). This approach promotes maximum participation as well as promoting long term learning, catering for all abilities, assisting the beginner coach with limited technical knowledge of a sport and inexperience in group management and it encourages the child’s understanding of the need for rules.

Key findings from the first year of operation of the AASC program include:

- 88% of children participating in AASC program were traditionally inactive prior to their participation
- 75% of children say they want to continue in AASC
- 81% of schools and OSHSC believe AASC encourages non-active children to spend more time participating in physical activities
- 91% of schools and OSHCS believe AASC improves the attitudes of non-active children towards physical activity
- 89% of schools and OSHCS report that AASC increases children’s fundamental movement skills
- 74% of children feel they are better at physical activities since participating in AASC (Australian Sports Commission, 2006).

The Australian Sports Commission (ASC) has designed a Community Coach Training Program to accredit AASC coaches to deliver structured physical activity programs to primary school children. This program consists of six modules: Role of the AASC community coach (1 hour), communication and behaviour management (2 hours), safe environments (1.25 hours), nutrition and well-being (0.75 hours), PFL (6 hours), and planning, preparing and reviewing (3 hours). It is significant that the ‘Playing for Life’ approach has such a major role in the training program. The PFL module also aligns the categories of games to TGfU with target, net/court, striking/fielding, and invasion games forming the basis of the program. In addition, PFL focuses on three principles of games that set questions and challenges: time (when will you?), space (where will you?), and risk (which option?). The PFL session generally follows the format of: warm-up, small game, challenge/questions, further development of game, repeat process 3-4 times, small game, cool-down (Australian Sports Commission, 2005). There are now over 20,000 trained community coaches that assist in the implementation of the program throughout Australia (ASC, 2008).

The study

This study set out to determine what factors enhance or inhibit the teaching of games to children utilising the Playing for Life (PFL) approach adopted by the AASC program.
Methodology

The participants in the study were purposefully selected from a professional development workshop for AASC NSW regional coordinators conducted in 2006. Thirty-one AASC coordinators consisting of 12 teachers, 2 Development Officers, 6 Sport Administrators and 11 coaches, were surveyed to investigate the success of TGfU in the program. The questionnaire addressed four areas: how the Playing for Life approach in teaching games promoted physical activity and game understanding; factors that enhanced the teaching of games; factors that inhibit the teaching of games; and other strategies used in the teaching of games. The questionnaire was supported by a focus group interview with six of the coordinators. Data generated were analysed to identify common themes that emerged.

Results

Overall, the data revealed that a fun, innovative environment enhances the quality of games teaching. The responses to the four major survey questions from the coordinators are tabulated below (see Tables 1, 2, 3 and 4).

Table 1 Participant responses to Question 1.

| Describe how you implement ‘Playing for Life’ in teaching games and promoting physical activity |
|------|---------------------------------------------|
| Through a variety of games |
| Highlight questioning and inclusive practices |
| Developing game scenarios |
| Socratic questioning |
| Practical based learning |
| FISH principle-fun, inclusive, safe and have a component of high intensity |
| Having as many students active as possible |
| Learning by doing |
| Through small games |

The responses in Table 1 were very positive in relation to the role PFL played in the success of the AASC program. This was supported by the focus group where the emphasis
was on progressively challenging the children and creating situations where they had to problem-solve.

**Table 2** Participant responses to Question 2.

<table>
<thead>
<tr>
<th>What factors enhance the teaching of games?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calling on participants’ experience</td>
</tr>
<tr>
<td>Demonstrations</td>
</tr>
<tr>
<td>Inclusivity</td>
</tr>
<tr>
<td>Knowledge of the games</td>
</tr>
<tr>
<td>Ability of students</td>
</tr>
<tr>
<td>Creativity</td>
</tr>
<tr>
<td>FISH principle-fun, inclusive, safe and have a component of high intensity</td>
</tr>
<tr>
<td>Have students involved in creating games</td>
</tr>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Questioning</td>
</tr>
<tr>
<td>Resources</td>
</tr>
<tr>
<td>Experience</td>
</tr>
<tr>
<td>Have a structure to meet outcomes</td>
</tr>
<tr>
<td>Many different games</td>
</tr>
<tr>
<td>Ask questions for changes that help the students have ownership of the games</td>
</tr>
<tr>
<td>Flexibility</td>
</tr>
<tr>
<td>Planning</td>
</tr>
<tr>
<td>Equipment</td>
</tr>
<tr>
<td>Empowerment</td>
</tr>
</tbody>
</table>

There are obviously many factors that influence the teaching of games. Many of the responses in Table 2 reflect the PFL/TGfU concept. The emphasis from the focus group was the role of the coach being a facilitator rather than a director, with each session consisting of player-centred activities.
**Table 3** Participant responses to Question 3.

<table>
<thead>
<tr>
<th>What factors inhibit the teaching of games?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflexibility</td>
</tr>
<tr>
<td>Lack of enthusiasm</td>
</tr>
<tr>
<td>Lack of resources-space, equipment and environment</td>
</tr>
<tr>
<td>Uninterested students</td>
</tr>
<tr>
<td>Lack of knowledge</td>
</tr>
<tr>
<td>Students lack of skills</td>
</tr>
<tr>
<td>Traditional methods</td>
</tr>
<tr>
<td>Weather</td>
</tr>
<tr>
<td>Behaviour of students</td>
</tr>
<tr>
<td>Wide range of abilities of participants</td>
</tr>
<tr>
<td>Group sizes too big</td>
</tr>
<tr>
<td>The game itself</td>
</tr>
</tbody>
</table>

The responses outlined in Table 3 are typical of most coaches that teach children. These were reinforced by the focus group that suggested the PFL approach counteracts many of these inhibitors by providing for maximum participation through its inclusive practices. They also emphasised that the PFL concept can be implemented well in reduced space and indoor areas.

**Table 4** Participant responses to Question 4.

<table>
<thead>
<tr>
<th>What other strategies do you utilise for the teaching of games?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback from players</td>
</tr>
<tr>
<td>Learning by discovery</td>
</tr>
<tr>
<td>Fully inclusive</td>
</tr>
<tr>
<td>Balloon and simple games</td>
</tr>
<tr>
<td>Variety and flexibility</td>
</tr>
<tr>
<td>Try to relate strategies and techniques from different sports</td>
</tr>
</tbody>
</table>
It is important to state that the TGfU/PFL approach is not the only pedagogical model for teaching games. However, the participant responses indicated that it is most certainly one that encapsulates the dimensions of the AASC program - allowing children of all abilities to participate, enjoy and contribute to the learning of games.

**Discussion**

The results highlighted that there are many factors that are important if we want children to remain active and participating in games. They include having plenty of variety of games and making sure that they are fun, inclusive, safe and have a component of high intensity (FISH principle). It is appropriate to challenge the participants through questioning through the TGfU approach and to keep them active through a learn-by-doing approach. As teachers/coaches we need to be creative, flexible, have knowledge of the games and the appropriate resources to implement them. The majority of responses that the ASSC coordinators provided in relation to enhancing the teaching of games were those that are the basis of TGfU. Whilst teachers and coaches interpret TGfU in different ways (Light, 2004), PFL provides a sound basis for coaches teaching games to children of all ages and abilities in the AASC program.

Teaching games for understanding in Australia has had increased awareness and exposure since the visit of Rod Thorpe in 1996. Teachers and coaches have received information and training through professional development workshops and through courses such as the AASC Community Coach accreditation. Coaches involved in the AASC program indicate that PFL enhances the quality of games teaching. It is important that the TGfU focus continue in all coach education programs so that more children remain active and wanting to participate in games because of the fun and challenging environments that this approach can provide.

The TGfU concept is now widely recognised in Australia. It is written in to school syllabi, coach training programs and pre-service teacher education programs. Continuing research into games teaching at a variety of delivery sites will assist in promoting long-term learning and enhancement of physical activity for all children.

**References**


Improving the quality of games teaching to promote physical activity


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Game-centred models and teaching in culturally diverse settings

Jacqui Peters and Lisa Shuck
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Abstract

This presentation draws on the observations and experiences that we, as teacher educators, have had using Teaching Games for Understanding (TGfU) as a pedagogical tool with generalist pre-service teachers in two different sites: Malaysia and Australia. TGfU is a game-centred pedagogy in which students learn the ‘Why’ of game playing before the ‘How’ of the skills associated with the game. This concept is based on a student-centred approach to learning. The benefit of this pedagogy to generalist teachers is the notion that they are not required to be a master of many sports. This narrative relates the observations and experiences of teacher educators of Malaysian and Australian generalist pre-service teachers confronted with teaching and learning TGfU for the first time in their culturally specific contexts. The two key issues arising from teaching the TGfU model were: the disparity in the cohorts’ experiences arising from institutionalised conceptions by the pre-service teachers of what and how learning occurs in physical education; and the pre-service teachers’ difficulty with implementing the TGfU model in a practical situation. Crossing the cultural divide for the Malaysian and Australian pre-service teachers required them to explore more fully the range of approaches to teaching and to recognise a more student-centred approach as a valid and authentic tool. As both teachers and observers of this process, our intention was to examine the two cohorts’ learning and subsequent teaching with the aim of developing better understandings of the challenges when teaching TGfU in tertiary settings.

Keywords: Game-centred, Culture, Apprenticeship of observation, Pedagogy

Introduction

To date there has been an abundance of literature informing teaching and learning in physical education through Teaching Games for Understanding (TGfU). As the concept nears 30 years since its inception (Bunker and Thorpe, 1982), it is being adopted in countries around the world under various guises. These include, but are not limited to Game Sense (Australian Sports Commission, 1999) and Launder’s (2001) Play Practice in Australia; the Tactical Games Approach in the USA (Mitchell, Oslin & Griffin, 2005); and Singapore’s Games Concepts Approach (Light & Butler, 2005). However, little research has been undertaken outside of Australia, UK and USA to address the issue of culture and the teaching and learning of TGfU (Light, 2005; Light & Tan, 2006).

The intention of this study is to contribute to this dearth of information by offering an analytical narrative of the authors’ experiences in teaching the theory and practice of TGfU,
which we will refer to as a game-centred model, in two culturally diverse settings. Pre-service teachers’ attempts to then implement this game-centred model into school settings in their own countries will also be considered in light of these issues.

The authors’ teaching occurred in the primary pre-service setting – one in Australia and the other in Malaysia. Similarly, both involved university students learning to learn using this constructivist and cooperative teaching approach in physical education for the first time, with a view to utilising it in their future teaching. Similarly, the pre-service teachers’ subsequent experience involved children learning in primary schools using the student-centred approach for the first time within their respective countries.

The authors experienced some initial barriers to teaching in the Malaysian setting. These included language; lack of equipment; cultural expectations of both the teacher and the learner; and most significantly, Malaysian pre-service teachers’ limited background experiences of student-centred learning. The student-centred games teaching model was completely incongruous with their previous learning experiences. These previous learning experiences, often referred to as the “apprenticeship of observation” (Lortie 1975) will be discussed further in this paper in relation to both the Malaysian and Australian pre-service teachers.

Distinctly different, yet not diametrically opposed were the authors’ experiences with the Australian students. These students also brought to the setting a range of learning experiences, but adjusted more quickly to the student-centred manner in which the game-centred aspect of the unit was conducted. The authors suggest that similar experiences in other method areas may have contributed to their level of comfort with this pedagogy.

The discussion evolving from this paper intends to highlight issues for further scholarly attention in relation to crossing the cultural divide in a pedagogical sense in relation to TGfU or similar models for teaching game sense.

**Literature Review**

The teaching and learning of games in physical education attract a significant curriculum allocation. Werner, Thorpe and Bunker (1996, p.28) suggested that approximately 65% of physical education curriculum time is allocated to games. The way in which we teach games, therefore stands to have a significant impact on the lives of the students we teach.

Despite its longevity, TGfU is still an emerging pedagogy in Australian physical education. Borne from a constructivist perspective (Kirk & Macdonald, 1998), TGfU challenges traditional ways of ‘doing’ within games in the school physical education setting. It is a tactical and cooperative approach to learning through games rather than a skill-based approach. It is based on an assumption that students need to know not only how, but also when and why to perform skills in games (Bunker & Thorpe, 1983). This approach utilises modified game play as a means of early engagement with the activity. The teacher takes on the role as a facilitator rather than the pedagogue who might frequently be engaged at the front of the class in explanations and demonstrations. Light and Georgakis (2006) admit that physical educators have moved slowly to adopt this student-centred approach, showing some
resistance to the model. Being an enormous shift from how teachers themselves learned (Light & Georgakis, 2007) is one significant reason for this reticence to ‘jump ship’ from a traditional style of teaching to this more progressive and essentially different way of doing. After all, values once formed are difficult to change, particularly after the first 10 years of teaching (Ennis & Chen, 1995).

Light and Georgakis (2007) reported that many teaching programs in universities are embracing the range of pedagogies now recognised as more inclusive, student-centred approaches. Ours is no exception. Pre-service teachers come to our teacher education programs with varied experiences, influenced by years immersed in the social settings of sports and school (Kirk & Tinning, 1990; Light & Georgakis, 2007; Templin & Schemp, 1989; Tinning, Macdonald, Wright & Hickey, 2001). These years of experience are referred to by Lortie (1975) as “the apprenticeship of observation”. At least thirteen years of observation and evaluation of teachers in their own learning settings provides pre-service teachers with “default options” or “a set of tried and tested strategies which they can revert to in times of indecision or uncertainty” (Tomlinson, 1999 as cited in Borg 2004, p.274) in their own teaching practice. The apprenticeship of observation contributes to the preconceptions pre-service teachers bring to teacher education programs.

Values shaped from years of their own participation in school physical education and sport programs which are often negative (Light, 2002; Light & Georgakis, 2007a), create an initial barrier to learning and enjoyment, but can often quickly be broken down initially using a game-centred approach. Light (2002) agrees that some students will remain unconvinced as to the educational value that games can have, averse to physical education based on previous negative experiences. However, many find that the inclusive nature of game-centred teaching is more enjoyable (Light & Georgakis, 2007) and the often ignored “complex thinking skills” required in games, as described by Howarth (2000, p.270), can generate genuine interest for students of TGfU or similar models.

The contextualised nature of learning means that attempting to make comparisons between the Australian and Malaysian settings requires an understanding of the culture of both settings. Kirk and Macdonald (1998) suggested that learning is strongly influenced by the social and cultural contexts in which it takes place. In defining culture, we found that the literature offered a range of definitions. The authors chose a definition best suited to both contexts and to learning in physical education as “the set of values, conventions, or social practices associated with a particular field, activity, or societal characteristic” (Merriam, 2009). Despite being a dictionary definition (Thomas, Nelson & Silverman, 2005), this multifaceted definition of culture also serves as an operational definition as it ideally reflects the complex nature of learning in any situation.

**Methodology**

This narrative serves as a form of action research – an opportunity for self-reflection of our current practice working with primary pre-service teachers both in Australia and Malaysia. A narrative was selected as an initial means of understanding the phenomenon of teaching pre-service teachers in another country and culture quite different from our own.
The Australian and Malaysian students – both enrolled in this Australian university’s teacher education programs in their respective countries, were taught very similar game-centred teaching concepts over a semester period in learning groups of approximately 25. They received instruction in the form of a one-hour teacher-directed lecture and a two-hour student-centred practical once a week over the semester, supported by online journal articles for further reference.

Both groups subsequently implemented five games sessions with the assistance of a partner or small group in a primary school setting using a game-centred pedagogy. The teaching practice was designed in a pair or group format anticipating that pre-service teachers would work with only a small group of children to enable them to feel supported in their first attempts at teaching. This occurred in the Australian setting but was not the case in Malaysia as the students were confronted with groups of thirty to forty children. This group size is not uncommon to primary schools in Malaysia. Learning groups at each school were supervised by a university lecturer.

Consultation with, and feedback from both the Australian and Malaysian lecturers in the respective university settings offered pre-service teachers a forum for discussing issues related to their teaching. In the school setting, informal feedback was also offered by supervising classroom teachers who remained with their classes during the sessions. University staff encouraged on-line discussion in Australia and partner discussions in Malaysia as the university lecturers were not able to be present at every lesson.

In this study, discussions around these experiences are based on the authors’ understanding of learning in an Australian university culture in conjunction with rich data that already exists around teaching using game-centred pedagogies in Australia, UK and USA, but which are only beginning to come to light with regards to the transportation of these pedagogies into other culturally-diverse settings (Light, 2006).

**Learning in the university setting**

Although the learning constraints of both settings were similar, there was variance in the conditions existing between the two. In the Malaysian setting there was very little equipment for use in schools or for university practical classes. In many cases, improvised equipment such as rolled up newspaper for bats, and quoits instead of balls, were used. In both the school and university settings in Australia, equipment was in abundance. Activity ideas weren’t limited by equipment or space.

If we consider available equipment in terms of the apprenticeship of observation, there was little impact on the two cohorts’ ability to teach using the game-sense pedagogy. Malaysian university students have learnt using little equipment in their own schooling and will therefore have developed what Tomlinson (1999, as cited in Borg 2000, p.274) referred to as “a set of tried and tested strategies”, or a practical versatility in being creative with equipment. Likewise, the Australian cohort did not need to adapt at all, having similar constraints in the primary settings as they did in their learning at both school and university. The group most affected by the difference between the settings was, in fact the authors, who had transported this pedagogy into a setting where conventions differed greatly from what they knew and had experienced. Once immersed in the setting, the authors’ level of
experience and flexibility allowed them to adapt to working with little or no equipment and resources in modelling the game-sense pedagogy.

The Australian cohorts were primarily taught by the Australian university staff, who have had significant experience in teaching using a game-centred pedagogy. This was discrepant to Malaysia where the lecturers and students workshopped the concepts with the Australian lecturer and then continued to explore the game-centred model in the university and school settings with their Malaysian supervisors. Most Malaysian staff had no experience working with a game-centred model in the university setting – the exception being one individual who was well versed in TGfU through attendance at an international conference and the experience of working with the model at the elite sporting level where TGfU is well-entrenched in Malaysia. Game-centred pedagogies are not visible in the Malaysian primary school setting though, as the intellectual curriculum such as languages, sciences and maths are prioritised and physical education is often delivered by teachers untrained in physical education (Rashid, 1994 as cited in Marshall & Hardman, 2000). In comparison, game-centred pedagogies in Australia are more frequently utilised across sport at all levels and in primary and secondary schools. However, game-centred models were not being used in the primary schools where either cohort of students did their practice teaching.

The make-up of the Australian student cohort was less diverse than that of the Malaysian group. Australian university cohorts in pre-service education regularly draw upon people from a range of cultural and religious backgrounds, however PETE programs in Australia differ slightly in that they often attract Anglo-Saxon enrolments (Tinning et al., 2001). This was evident in the make up of the Australian cohort who had chosen physical education as an elective unit with the view of qualifying themselves to teach physical education in schools.

Unlike the comparatively generic Australian cohort, the Malaysian pre-service teachers were an extremely diverse group of people from Muslim, Buddhist, Malay, Indian and Chinese backgrounds. They had come to university from a range of school settings which included Tamil, Chinese and National schools. In considering the background each pre-service teacher brought to this setting, it is important to note that each of the above-mentioned schools speak its preferred language, excepting in Mathematics and Science where English is the mandated language for teaching and learning. Thus, physical education in Malaysia is taught in a range of languages. This factor in particular increased the diversity of the group

This had implications for physical education specific language used by the Australian lecturers in the Malaysian setting. The authors found that the Malaysian pre-service teachers were interested in speaking English to improve their language skills but occasionally a student would be required to interpret the workshops for those who were challenged by speaking and understanding English. Periodically, questions relating to culturally specific understandings in teaching, learning and sport were raised. In these situations, the Malaysian lecturers sought to clarify certain subject matter with the Australian lecturers in order to find common ground. Most conundrums were resolved through peer teaching Malaysian lecturers who in turn informed their pre-service teachers.
The similarities between the Australian and Malaysian cohorts though, were that both contingents were rich with a range of apprenticeships of observations (Lortie, 1975). Whilst both Australian and Malaysian cohorts attracted groups with different values and societal practices embedded in their culture that reflect how they were taught in their schooling years, teaching in the Malaysian setting had some added complexities. The apprenticeship of observation of the Malaysian cohort was predominately teacher-directed learning. The authors used an explicit teaching technique to model both a traditional teacher-directed mode of delivery and a student-centred approach to encourage discernment by the Malaysian cohort. It also took some time and encouragement for the pre-service teachers to develop the confidence to answer and ask questions and contribute to discussion but it was apparent through their responses that they had understood the workings of the student-centred model in application.

In addition, some of the Malaysian cohort came from religious and gender-segregated experiences of learning in physical education but were being asked to work together in the University setting for this program. This challenged the learning culture of these pre-service teachers as conventions were thrown aside and values and social practices were challenged. The issue of mixed gender learning was examined by the Malaysian pre-service teachers. The outcome was an overwhelming agreement that both children in schools and themselves as learners would stand to gain from participating cooperatively in games. These pre-service teachers were expected to collaborate, discuss and share as is consistent with the game-sense based pedagogy (Wright, McNeill & Butler, 2004). It was evidenced through their practice that both Australian and Malaysian pre-service teachers embraced this in practical activities.

Issues around gender and participation were not evident in the Australian setting. Pre-service teachers were already familiar with working in mixed-gender groups and using a student-centred approach to teaching. They had investigated constructivism as a pedagogy in their first year of their teaching course and had been relatively well-acquainted with learning in a more student-centred manner through their own apprenticeship of observation, having been immersed in it for the most part of their primary and secondary learning experiences. Unfortunately, not many of them had experienced this student-centred style of learning in physical education. As previously alluded to, there are still many teachers in Australia reticent to embrace the new ways of thinking and doing involved in teaching using a student-centred pedagogy in physical education (Light & Georgakis, 2007), possibly based on their own apprenticeships of observation.

The authors’ experiences in the Australian setting attested to the fact that the Australian cohort had immediately engaged with the student-centred pedagogy as part of an acceptance of the conventions of learning in this university’s culture. Mixed gender working groups and learning through student-centred pedagogies were commonplace practices for these pre-service teachers.

*Teaching and learning in the primary school setting*

Undertaking this narrative analysis exposed some issues worthy of further discussion. Even though our questioning of, discussion with, feedback from, and observation of pre-service teachers in both settings indicated their understanding of the game-centred model in
practical classes, this did not correlate with their teaching in the primary school settings in most cases.

Observation of the micro-teaching environments in primary schools in both countries revealed that many pre-service teachers were grappling with class control, safety and the use and distribution of equipment, unable to apply the teaching model to the primary school environment. In addition, the apprenticeship of observation still had a highly significant effect on their practice – especially when put under pressure in a new and often nerve-wracking situation, as is the case with pre-service teachers working in schools for the first time. Many reverted to what was comfortable or the “default options” referred to by Tomlinson (1999, as cited in Borg 2004, p.274), reflecting that in many cases, both cohorts’ apprenticeships of observation in physical education had been in a teacher-directed style of learning.

In addition, the students they were teaching in schools were also undergoing their own apprenticeship of observation and in some cases, in the situation of Grade 6 students, have had at least 5 years of their own apprenticeship already built into their understanding of what it is to learn in physical education. Butler (1996), in her study of teacher responses to teaching TGfU for the first time, indicated that teachers were concerned that students were unable to change to a student-centred model if their background was in learning skills in a traditional manner.

For the pre-service teachers, any meaningful change in teaching requires a conceptual shift in the way instruction is presented. Fullan (1993) argued that change does not have a blueprint, it is not linear, and is loaded with uncertainty. Innovation of any new instructional format is problematic at best. What, how, and why innovations work – particularly transferred into a culturally diverse setting, are valid questions.

The barriers to our teaching in Malaysia are somewhat consistent with the barriers the Malaysian pre-service teachers were confronted with in their own teaching practice in primary schools. Issues of language in a multilingual system; cultural expectations associated with groupings, new game-centred specific language and the practice of questioning and discussing; and an apprenticeship of observation in teacher-directed learning were hurdles to be overcome in both the university and primary school settings.

In the Australian setting, there were no obvious hurdles to the authors’ teaching of pre-service teachers. However, for the transfer of this practice into their teaching of primary school children, the Australian cohort required a real conceptual shift to occur. This is likened to the conceptual shift required for the Malaysian pre-service teachers, however the Malaysian setting is complicated by the cultural issues mentioned above. Breaking down the apprenticeship of observation requires substantially more time and practice for the pre-service teachers – time not available within the semester in the crowded curriculum of the university teacher education programs.
Conclusion

In drawing this analytical narrative to a conclusion, it is apparent that many issues have arisen that are worthy of further research. The breaking down of the apprenticeship of observation in order to move forward is a complex issue. A conceptual shift from an experience so heavily embedded in teacher-directed learning is not easy, nor clear-cut as to how it is best approached. Certainly, the added complexities associated in transporting a new pedagogy into a learning environment that is culturally inconsistent to what the authors know, understand and are well-practised in, requires further attention.

Crossing cultural boundaries for these authors meant reviewing the core of what TGfU or a game centred approach is about - student-centred learning. The Malaysian pre-service teachers were empowered by the student-centred model as they had only known a traditional and authoritative style of teaching. The Australian cohort were not as confronted, nor as excited by the model as it was not significantly different to what they had already been presented at university regarding student-centred learning.

What became particularly evident though, was both groups’ inability to reproduce the model in their own teaching. Lack of opportunity to practice will certainly have affected both groups of pre-service teachers’ abilities to implement the model effectively. We are commenting on their practice after only one unit of learning in the university setting and five sessions of implementation. Primarily though, given the opportunity to teach in the school setting, teaching through the game-sense model is only one priority for the pre-service teachers. Many other obstacles contributed to their inability to teach in a composed and confident fashion which included basic group management skills in the outdoors, understanding and teaching content, modifying lessons to cater for a range of abilities to name a few.

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Expanding the teaching games for understanding (TGfU) concept to include sport education in physical education program (SEPEP)

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Abstract

TGfU has been in the Australian sporting community for over a decade and more recently as part of school curriculums across Australia. It has focused on a problem solving approach which has been primarily student centred and involves questioning as a primary ingredient. Sport Education in Physical Education Program (SEPEP) also focuses on students and promotes the development of skills by students taking on roles such as coaches, umpires, managers, game analysers, publicity officer etc. These roles increases their knowledge and understanding of the sporting environment. This paper will outline the TGfU and SEPEP models as a starting point. It will closely analyse the questioning technique which is essential to TGfU. With TGfU the questions are primarily directed at the participant or player. The focus here will be how this is now expanded to the SEPEP roles. It will illustrate how questions can be given to the coach and game analyser so that they will have a better understanding of the game. These questions will include the following areas: strategy/tactics, technique, cognition (decision-making, communication and concentration) and rules. Practical examples will be outlined from one of the categories of games (striking/fielding, target, invasion and net/court). It will describe the activity/game, and give examples of SEPEP roles and questions.

Keywords: SEPEP, TGfU, Questioning

Introduction – Teaching Games for Understanding

Teaching Games for Understanding (TGfU) provides students with a more substantive base and clearer frame of reference for learning about critical elements of game play/ (Pearson, Webb and McKeen, 2008). It is a games based pedagogical model aimed at generating greater understanding of all aspects of games, while increasing physical activity levels, engagement, motivation and enjoyment in physical education lessons. (Forrest, Webb and Pearson, 2006),

TGfU is a holistic teaching approach that encourages student based learning and problem solving. It focuses on teaching games through a conceptual approach, through concepts, tactics and strategies rather than through a basis of skill, a technical games teaching approach, or TGT. (Wright, McNeill, Fry and Wang, 2005)
Primary aged children have recently been exposed to TGfU concepts through the Australian Sports Commission’s ‘Playing for life’ approach adopted in their Active After School Communities (AASC) coach training program. AASC is a national program that is part of the Australian Commonwealth Government’s $116 million Building a Healthy, Active Australia package. It provides primary aged school children with access to free, structured physical activity programs in the after school time slot of 3.30 pm to 5.30 pm. The program is designed to engage traditionally non-active children in physical activity and to build pathways with local community organizations, including sporting clubs (ASC, 2005). ‘Playing for life’ is an approach to coaching that uses games as the focus of development. By concentrating on game-based activities, children are able to: develop skills within a realistic and enjoyable context, rather than practising them in isolation and from a technical perspective. Become maximally engaged in dynamic game-based activities that use a fun approach to developing a range of motor skills’ (ASC, 2005, p.53).

Research (Light, 2002, 2003; Thomas, 1997a; Turner & Martinek, 1999; Werner, Thorpe & Bunker, 1996) indicates the strengths of the TGfU approach and the desirability of it as one of the major approaches to the quality teaching of games. Light (2002) highlighted the effectiveness of TGfU for engagement and cognitive learning. Higher order thinking occurs from questioning and discussion about tactics and strategies and also ‘through the intelligent movements of the body during games’ (Light, 2002, p.23). Cognitive development through decision-making and tactical exploration are combined with skill development within modified games to provide meaningful contexts. Light (2002) suggests that it is difficult for some physical educators to address cognition in games. TGfU is one pedagogical approach that may assist teachers and coaches to address this issue.

Given the decreased involvement of children in physical activity, TGfU is aimed at encouraging children to become more tactically aware and to make better decisions during the game. As well, it encourages children to begin thinking strategically about game concepts whilst developing skills within a realistic context and most importantly, having fun. Essentially by focusing on the game (not necessarily the ‘full’ game), players are encouraged to develop a greater understanding of the game being played. Thomas (1997b) states that the desired effect of this is ‘players/students who are more tactically aware and are able to make better decisions during the game, thereby adding to their enjoyment of playing the game’ (p.3). Research by McKeen, Webb and Pearson (2005) support the increased enjoyment of students exposed to the TGfU approach compared to traditional teaching of games. TGfU has been shown to result in improved learning outcomes for students. Games are a significant component of the physical education curriculum, with research suggesting that ‘65 per cent or more of the time spent in physical education is allotted to games’ (Werner et al, 1996, p.28).

The Implications of TGfU for teachers

There is no doubt a number of key aspects come to light. These include a deep understanding of games both within and across categories (target, invasion, striking/fielding and net/court) as is illustrated in a model for pre-service teachers (Forrest, Webb and Pearson 2006). The integrated approach refers to the ability to analyse and develop constructive lessons that go across sports and activities In addition, the response from teachers indicate
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the need to develop and understand the questioning technique. (Webb, Pearson and McKeen, 2005). Finally the need to program is critical as integrating units within and across categories will involve more innovative and stimulating lessons.

TGfU involves four categories and subcategories. They are invasion, net/wall, target and striking/fielding. Invasion are team games where the purpose is to invade the opponents territory with the aim being to score more points within the time limit than the opposing team, while endeavouring to keep their score to a minimum. Subcategories include where the ball can be carried or caught across the line (eg. Rugby league, rugby union, touch), it can be thrown or shot into a target (eg netball, basketball, handball, lacrosse) or it can be struck with a stick or foot into a target area (eg hockey, soccer, Australian rules football) (Webb, Pearson & Forrest, 2006). The aim of net/wall games is for a player or team to send an object into an opponent’s court so that it cannot be played or returned within the court boundaries. Tennis and volleyball are examples of net games while squash and racquetball are wall games. Striking/fielding games is a contest between the fielding and batting team where the aim is to score more runs than the other team using the number of innings and time allowed. The aim of target games is to, place a projectile near or in a target in order to have the best possible score. The subcategories are unopposed or opposed. In unopposed games the accuracy of the player in relation to the target determines an individuals success (eg golf, archery, tenpin bowling). In opposed games the players have an opportunity to interfere with the target or oppositions ball in order to create an advantage for themselves (Webb, Pearson and Forrest 2006).

There are also three different teaching approaches with TGfU. These approaches include the full sided (larger numbers), small sided (small numbers) and games for outcomes (setting outcomes for the game) (Webb, Pearson and Forrest 2006).

Sport Education and Physical Education Program (SEPEP)

SEPEP is a curriculum model that allows for the development of social, cognitive and sporting skills within students (Alexander, Taggart, Medland and Thorpe 1995). The SEPEP curriculum is defined by 6 primary features that create the sport context in physical education (Siedentop in Pill 2008).

1. Seasons. Sport is played in seasons that contain both practice and competition.
2. Affiliation. Sport is played in teams and players connect with and usually belong to the one team for the season.
3. Formal competition. Sports seasons include a schedule of competitions between teams.
4. Record keeping. Records of individual and team participation are kept to provide feedback and enable goal setting by participants and the teacher.
5. Festivity. Individual and team performances are recognised and celebrated throughout the season and during a culminating end of season event.
6. Culminating event. Sport seasons typically come to a conclusion with a defining event. The seasons therefore conclude with a festival type of event that celebrates the success of all students who participated.

One of the key aspects of the SEPEP model is that students participate in roles which are utilised in the sport environment. These can include coach, referee/umpire, publicity officer, game analyser etc. As part of these roles questions can be set to guide the participant and to integrate TGfU with SEPEP. These questions can be directed at cognition (concentration, communication, decision making), strategy and tactics and technique.

**Integrating TGfU and SEPEP**

TGfU is based on a problem solving approach and one of the key aspects is effective questioning. Generally these questions are directed at the participant but now utilising the SEPEP model this can now be focused at other roles such as the coach or game analyser. Let us now look at a practical example of a striking /fielding game.

Voluntary Run T ball is an introductory activity to the striking/fielding category of games. This simplified T ball game allows participants to run at any base (in a anti-clockwise direction), even off their initial hit. All runners have to be home after the last batter bats otherwise the team loses home runs for every batter left out. Batters and runners can only be out if hey are caught off the bat or they don’t make a base by the time he ball reaches the base. If a runner decides to run they have to go and cannot go back. The ball must also be hit in a designated area.

The focus should be on principles of play for both the fielding and batting team. For the fielding team this would include whole team, sub team (two or more players but not a team) and individual players state of play adaptations. Cognition – when to throw, where to throw (based on the state of play), what needs to be communicated and what do you concentrate on. The technique focus is throwing and catching. For the batting team this would also include whole, sub team and individual state of play adaptations. Cognition – when to run, where to hit (based on the state of play), what needs to be communicated and what do you concentrate on. The technique focus is the swing.

There are adaptations that can be made to the rules to introduce other principles of play. For example, if a ball is thrown to a base and there is no fielder behind the base, all runners advance home. This will require the batting team to take advantage of this rule while the fielding team strategy is to minimise the impact.

The next progression is 5 a side T Ball where there no longer is the voluntary run, the batting order is flexible and there is the 3 out rule. The focus as before is on implementing principles of play.

The types of questions with some possible responses for the coach or game analyser to answer are as follows:
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Fielding team:
Cognition (concentration, communication, decision making)

Q List all of the decisions that a fielder may have to make (consider Both on ball and off ball decisions plus in play and before play decisions)?
Possible Responses:
Where to field, throw, move and who to support.

Q. How do runners on base increase the complexity of the above decisions? Explain why?

What is the link between communication and concentration? (Listen to the verbal communication occurring to answer this question)

Strategy and tactics

What was the initial strategy and how did the positional play reflect this?
Describe any tactical changes that were made as each batter came to the “T”?
What elements if play were taken into account to make these changes?

Technique

What suggestions around technique would you give the fielding team?

What changes occurred in technical ability during the innings?

How did the fielding team use technical ability to determine the roles and positions of their strategic and tactical plans?

Batting team:
Cognition (Concentration, communication and decision-making)

List all the decisions that those on the batting team must make (consider both at bat and on base decisions)

How do runners on base increase the complexity of the decision of batter at the T? Explain why?

What are the elements a runner should concentrate on to allow them to decide to make a run to the next base/bases?
Strategy and tactics

What was the initial strategy and how did the selection of the first batter reflect this?

Describe any tactical changes that were made as each batter came to the “T”? What elements of play were taken into account to make these changes?

Technique

What suggestions around technique would you give the batting team?

What changes occurred in technical ability during the innings?

How did the batting team use technical ability to determine the roles and positions of the batters in their strategic and tactical plans?

Figure 1 Questions for the game analyser in the SEPEP model

Effective Questioning and Responses

As important to the whole TGfU and SEPEP approach of deep understanding of games is the art of successful questioning and evaluating responses because without it the approach will not succeed. Questioning skills and the ability to develop appropriate activities to allow the questions to be answered are central to the success of the Game Sense (TGfU) approach (Light 2003) which are fundamental reasons for the approach being so valued as a pedagogical model of quality teaching (Pearson, Webb and McKeen, 2005). Questioning can be applied to four areas: strategies, technical, rules and psychological which has been illustrated above. It is important that teachers can move beyond the beginning stage of asking questions to an intermediate or advanced stage. An example of this related to Voluntary T Ball is as follows. The teacher may ask the following question to the game analyser which is illustrated in figure 1 above. “List all of the decisions that a fielder may have to make (consider both on ball and off ball decisions plus in play and before play decisions) Response: “Where to field, where to throw the ball, who to cover, who will cover them and where to move?” Teacher says “Good answer”. However, the questioning has only reached the beginning stage as each situation has to be extended. For example, where to field is related to the whole fielding team and requires the spaces in the field to be covered according to the abilities of the fielding team but also must take into account the batter’s strength and weaknesses. It is important that actual situations are illustrated on the field so that a deep understanding develops.

Conclusion

Teaching games for understanding has been adopted by teachers and coaches around Australia for over a decade. SEPEP has also been used by teachers to increase participation
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by students in both the Physical Education and sporting environments. This paper has illustrated how both approaches can be integrated to increase understanding of the learner in the game environment through the effective use of questioning. It illustrated how questions can be directed to the coach or game analyser in the areas of strategy/tactics, technique, cognition and rules. A practical example was given from the striking/fielding category of games but the same approach can be utilised within invasion, target and net/court games.

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Working in the Department of Special Education since 1997. Area of specialization is Sensory Impairment. Seven International papers at Indonesia, Bangladesh, Malaysia, Honk Kong, America and Australia have been accepted and presented as author / co-author. More than 30 Master’s theses are supervised. Now waiting for Viva Voice for Ph.D degree in Hearing Impairment.

Jessica Bennett
Past Honours students in Faculty of Education, Centre for Human Movement, University of Tasmania. She is now teaching in Tasmania and using their research to better develop social and emotional wellbeing with the children they are teaching.

Mark Brown
B.App.Sc (Physiotherapy); MHSc (Sports Physiotherapy); MBA. Executive Officer, SMA Queensland Branch. 25 years experience as a Sports Physiotherapist and medical coordinator for events of all levels, including the Sydney 2000 Olympic and Paralympic Games, 2004 Athens Olympics, 2006 Melbourne Commonwealth Games, the Australian University Games and Pan Pacific Masters Games.

Milton Brown
Mr Milton Brown is the Head Teacher of Social Sciences at Barrenjoey High School in Sydney, New South Wales and has taught in High schools for 33 years. He is the International Education Director for SurfAid International and is responsible for developing and directing the global growth of the SurfAid Schools program.

Eric Brymer
Eric has been a competitor, National coach, manager and consultant in the U.S., Europe, UK, Asia and Australia. He has set up and developed facilities, systems, processes and procedures for profit, non-profit and government organisations in fitness, sport, outdoor recreation and community recreation. Eric’s research interests include eco-adventure activities, leadership, learning and wellbeing.

Lisa Buckley
Dr Lisa Buckley is a registered psychologist and a Post Doctoral Research Fellow at CARRS-
Author Biographies

Q. Her research interests are in the areas of adolescent injury and risk-taking prevention, adolescent peer relationships, health curriculum, and designing, implementing and evaluation of behavior change programs.

Rebekah Chapman
Rebekah Chapman is a PhD Scholar at CARRS-Q. She has worked for several years on a large scale program of research involving the development of a curriculum based injury prevention program for early adolescents. More recent research interests include improving adolescent health through school connectedness and examining strategies for behavior change using the web

John Cheffers

Kazem Cheragh Birjandi
Lecture and manager of Physical Education Department, Islamic Azad University, Birjand Branch, Birjand, South Khorasan, Iran (Since 2006). B.Sc, physical education, Birjand University, Birjand, South Khorasan, Iran, 2003. M.Sc, physical education, University of Mazandaran, Mazandaran, Iran, 2005.

Sadegh Cheragh Birjandi
Lecture of Physical Education Department, Islamic Azad University, Birjand Branch, Birjand, South Khorasan, Iran (Since 2008). B.Sc, physical education, Birjand University, Birjand, South Khorasan, Iran, 2005. M.Sc, physical education, Shahid Beheshti University, Tehran, Iran, 2007.

Deborah Cohen
Deborah manages the Australian Children’s Television Foundation’s education unit which involves the development of teaching and learning resources for online and DVD delivery, the ACTF’s online Learning Centre, Kahootz 3 professional development and the ACTF’s Advisory schools’ network. She has many years of experience in education as a curriculum advisor; writing and developing education resources, providing professional development and advice on curriculum implementation.

Vicki Cowley
Vicki Cowley is a Senior Lecturer in Physical Education and Professional Inquiry at the University of Canterbury. Vicki’s research interests include the influences that affect children’s physical activity and perceptual motor development and the quality of teaching
and learning in primary physical education programmes.

**Tom Cuddihy**
Tom Cuddihy is a HPE teacher and academic with 37 years of experience. He has been a national vice president of both ACHPER and the National Wellness Institute of Australia.

**Jeremy Dorovolomo**
Jeremy Dorovolomo is currently a lecturer in physical education, health and sport, University of the South Pacific. Prior to entering Teacher Education, Jeremy taught in Solomon Islands high schools for many years, including being Principal for three years.

**Ken Edwards**
Ken is a lecturer at the University of Southern Queensland. He was a physical education teacher for over 25 years and has worked at various universities over the last 17 years. His major research interests are physical education curriculum and pedagogy, Australian indigenous games and socio-cultural foundations of physical activity.

**Ghulam Fatima**
Mrs Ghulam Fatima is a lecturer in University of the Punjab doing her M. Phil in Special Education. She has been serving in the field of Special Education for the last nineteen years. She started her professional career as a teacher of children with hearing impairment at Allama Iqbal School for Special Education, Pakistan. After that she served that school as vice principal, then principal for fourteen years.

**Hina Fazil**
Hina Fazil, lecturer in the Department od Special Education, University of the Punjab, Lahore, Pakistan. I have 10 years experience in this field. I have supervised more than 50 Masters degree thesis. My major areas of interest are autism, mental retardation and learning disabilities. I have presented several research papers in the UK, America, Hongkong and Norway. I have submitted my PhD research on autism.

**Greg Forrest**
Greg Forrest has developed a reputation as one of the leading experts in games pedagogy and teaching in Australia. In 2008, the British Education Research Association (BERA) HPE group awarded his first journal publication on teaching and coaching games, ‘Paper of the Year’. He is also on the Board and member of the executive of ACHPER NSW.

**Mannie Garrard**
As the ACTF Education Office, Maggie supports the Education Manager in developing and managing the ACTF educational resources, programs and the online learning centre. The role involves promoting to schools, tertiary and pre-service educators the productions, programs and digital resources developed by the ACTF, and demonstrating the
Author Biographies

effectiveness of these in differing educational contexts and school classrooms.

Markus Gerber
Dr. Markus Gerber is a Basel-based lecturer and researcher. After his master degree in Physical Education and French Philology, he investigated stress-buffer effects of leisure time physical activity among adolescents in his PhD. His research interests are as follows: stress, sleep, social integration, promotion of physical activity and educational psychology. Currently, Markus works at HMS (University of Queensland) during a sabbatical leave.

Barrie Gordon
Barrie is a senior lecturer in health and physical education at Victoria University of Wellington. He has research interests in the teaching of physical education in schools, with a particular interest in the Teaching Personal and Social Responsibility (TPSR) Model and Teaching Games for Understanding (TGfU).

Halima Goss
Halima has been a PhD student who is finalising her thesis. She is currently completing a degree in medicine.

Mick Grimley
Dr. Michael Grimley is a Senior Lecturer in Education in the School of Educational Studies and Human Development at the University of Canterbury. His research interests are in the enhancement of learning, and in particular as it relates to cognition, motivation, interest, interactivity, new technologies and e-learning. These interests have led him into the study of how technology can be leveraged to improve learning.

Abdul Hameed
Dr. Abdul Hameed earned his PhD from the Ohio State University, USA. His academic interests include special education, philosophy of technology, educational change, critical theory, contemporary research paradigms and attitudes measurement. Dr. Hameed has 28 years experience of university teaching in various positions. He has more than 30 international presentations across thirteen countries. He published 32 research papers in national and international research journals.

Michael Hamlin
Dr. Mike Hamlin is Associate Professor of Exercise and Sport Science at Lincoln University. Dr. Hamlin’s research areas include physical activity, fitness and health particularly in young people. Mike also works in the area of elite performance.

Jill Hargreaves
Jill Hargreaves is a senior lecturer in the area of exercise and sport science for the B.Ed (Physical Education) and B.Spt Coaching at the University of Canterbury. Her fields of
research include; changing the direction of sport within NZ, children’s motor skills development, physical activity in adolescence and time devoted to physical education in formal settings.

**Amy Harris**
Past Honours students in Faculty of Education, Centre for Human Movement, University of Tasmania. She is now teaching in Tasmania and using their research to better develop social and emotional wellbeing with the children they are teaching.

**Ken Hawkins**
Chief Executive Officer of C Management Services Pty. Ltd. – a wholly owned subsidiary of Central Queensland University. Approved Auditor of the AUQA Board since 2007 and an Honorary Professor of Central Queensland University. Has had over 40 years previous experience in varied teaching and leadership roles in Australian and International universities. Has supervised 25 postgraduate students at the Masters and Doctoral level from 1983 to present. Has authored/co-authored 12 books and many refereed articles. Fellow of the Australian Institute of Management. Graduate of the Australian Institute of Company Directors. Visiting Scholar at Boston University for 10 years.

**Viv Hullena**
Viv is a lecturer in health, physical education and education outside the classroom at Victoria University of Wellington. She has research interests in curriculum development and implementation in health and physical education, with a particular interest in the actioning of the key competencies.

**Tim Jaakkola**
Timo Jaakkola works as lecturer of sport pedagogy at University of Jyväskylä in Finland. His teaching areas are school athletics and motor learning. He has scientific papers on sport and exercise motivation, physical activity, motor skills, and imagery in sports.

**Hilary Langford**
Hilary Langford established Oliver & Langford in 1984, with clients in the public, private, academic, community and sporting sectors. She has built a considerable reputation for addressing people-issues in organizations throughout Australia, NZ, PNG, USA and UAE. In her consulting practice she facilitates workshops and undertakes executive coaching, change management, and conflict resolution. Trained in the Enneagram by Dr David Daniels, Clinical Prof of Psychiatry, Stanford Medical School and Helen Palmer, international exponent and writer, Hilary has brought understanding of motivation to leadership, team, and personal development.

**Elise McWhirter**
Past Honours students in Faculty of Education, Centre for Human Movement, University of
Author Biographies

Tasmania. She is now teaching in Tasmania and using their research to better develop social and emotional wellbeing with the children they are teaching.

Danika Morse
Past Honours students in Faculty of Education, Centre for Human Movement, University of Tasmania. She is now teaching in Tasmania and using their research to better develop social and emotional wellbeing with the children they are teaching.

Brendan Moy
Brendan has a strong background in Health and Physical Education having co-ordinated and taught in Queensland schools for 24 years. In 2008 he commenced his academic career as a lecturer specialising in Senior Physical Education. Brendan's research interests include the evolution of games teaching in schools and the contemporary constraints led approach to teaching games.

Antonio Müller
Full Professor in Volleyball and Physical Education at Prince Sultan University in Riyadh Saudi Arabia. Doctor in Education from The University of Texas at El Paso in 2004. Many years of experience in volleyball coaching in Brazil, USA, and Saudi Arabia. Professional Volleyball player in Brazil.

Katie Nicholson
Past Honours students in Faculty of Education, Centre for Human Movement, University of Tasmania. She is now teaching in Tasmania and using their research to better develop social and emotional wellbeing with the children they are teaching.

Maryam Nourshahi

Phil Pearson
Dr Phil Pearson’s current research is concerned with developing strategies for increasing the physical activity of children and adolescents in educational settings. He has been involved in extensive professional development of pre-service and in-service primary and secondary PDHPE teachers throughout NSW in school sport and teaching games for understanding.

Scott Pedersen
Dr. Pedersen received his Ph.D. in Human Performance from Indiana University (USA) in 2003. A lecturer for the Centre for Human Movement in the Faculty of Education at the
University of Tasmania, Dr. Pedersen’s specific research interests lie in the development/maintenance of cross lateral integration for all individuals.

**Jacqui Peters**
Jacqui is a Lecturer in the School of Education teaching across primary and secondary HPE and general Education programs. Her research interests are around student engagement in physical education and assessment in physical education. She is currently undertaking her PhD in assessment in physical education in higher education.

**Kaye Phillips**
Kaye Phillips has worked in Education for more than thirty years as a teacher, principal and manager. As a teacher her underlying belief was that learning beyond the classroom walls is fundamental to the education of children. Her core work over the last decade was aligned with student safety.

**Shane Pill**
Shane formerly held leadership positions in secondary schools, including HPE and Sport Coordinator, Director of School and Deputy Principal, but now works in PE teacher education at Flinders University. His research interests include PE and Sport curriculum and pedagogy, particularly TGfU-Game Sense and SEPEP initiatives.

**Chris Price**
Christopher Price is a lecturer in Physical Education, co-ordinator of the Primary Graduate programme and Practitioner Specialist, at the University of Canterbury, College of Education. Current research includes circo arts, boys’ education and the practicum in teacher training.

**Toby Priest**
Toby is a former secondary HPE Coordinator now working in a Primary School as a physical education key teacher. Toby is highly active in physical education teacher education and coordinates the ACHPER SA Early Career Teacher Project.

**John Quay**
John Quay is a Lecturer in the Graduate School at The University of Melbourne. Amongst other areas, he teaches Health and Physical Education in pre-service teacher education courses. His interests also include outdoor education and educational philosophy.

**Paul Reddish**
Paul was a research analyst for the Ministry of Education. He is currently a PhD candidate at Victoria University of Wellington. His interests lie in the psychology of religion, morality and human bonding.
Author Biographies

Ian Renshaw
Ian is a Senior Lecturer at QUT, Brisbane. Ian’s research is focussed on applying the ideas and concepts of ecological psychology and dynamical systems theory to sports performance. Current research projects focus on the development of expertise, perception-action coupling and developing non-linear pedagogical approaches to teaching and coaching.

Eunike Rustiana
Dra. Eunike Raffy Rustiana, M.Si, Semarang State University, Central Java, Indonesia. I was born in the city of Yogyakarta, Indonesia on 27 April 1947. I’m a mother of 3 and also a Lecturer and Sport Psychologist in the Faculty of Sport Science, Semarang State University located in Semarang, Indonesia. I’m interested in Sport and Health Psychology and also Physical Education.

Hugh Shannon
Mr Hugh Shannon is a member of the Australian Council for Health, Physical Education and Recreation (ACHPER) and the Institute of Health and Biomedical Innovation (IHBI). He is an Associate Lecturer in Health and Physical Education pedagogy, with secondary school teaching experience and Queensland College of Teachers (QCT) registration.

Vinathe Sharma-Brymer
Dr. Vinathe Sharma-Brymer is a sessional staff with QUT, Australia. Her main teaching and research areas are Psychology and Education. Her work experience and interests cover a wide range of fields such as human development, early childhood education and training of teachers, human rights, social justice and change, and ecological conservation.

Mary Sheehan
Professor Mary Sheehan holds a senior research appointment at CARRS-Q. Her specific area of research concentration is the application of attitudinal and behavior change strategies to community and population based interventions. She has an established research profile in the public health area of adolescent injury prevention.

Lisa Shuck
Lisa is a Lecturer in the School of Education teaching across primary and secondary HPE and general Education programs. Her research interests are around transition into the Physical Education course and experiential learning and student engagement in physical education. She is currently undertaking her Master of Education in physical education students’ transition into the first year of the Bachelor of Physical Education course.

Stuart Sluggett
Stuart is now a secondary PE teacher at Cardijn College. Stuart was the research assistant
Author Biographies

for the ‘Sport Education as a curriculum model for boys’ personal and social development’ paper while a student at Flinders University.

Ian Stewart
Dr Ian Stewart is a Certified Strength and Conditioning Specialist (CSCS), and is a member of the American College of Sports Medicine (ACSM) and the Institute of Health and Biomedical Innovation (IHBI). He is a Senior Lecturer in Exercise Physiology with research interests in cardiovascular dynamics including temperature regulation.

Kelly Stewart
Ms Kelly Stewart is an Associate Lecturer in Nutrition & Dietetics within the School of Public Health at QUT. She previously worked at Nutrition Australia (Qld Division) where she was involved with the Nutrition in Schools Advisory Service. Her role included the development and implementation of nutrition and physical activity programs for school age children. Kelly also worked at the Australian Institute of Sport (AIS) as a Sports Dietitian.

Brendan SueSee
Brendan is a PhD student at QUT and a full time physical education teacher at Cavendish Road High School in Brisbane. He has taught for 13 years. His PhD has examined teaching styles used by teachers of senior physical education in QLD.

Karen Swabey
Senior lecturer and course coordinator in the Faculty of Education, Centre for Human Movement, University of Tasmania. Areas of research interest include all aspects of health education with a particular interest in social and emotional learning.

Liz Thevenard
Liz Thevenard is a senior lecturer at Victoria University Wellington. Liz has a life time of teaching physical education and education outside the classroom that includes outdoor education. She has a real passion for the outdoors and learning in authentic contexts. She values and promotes a sustainable future and the learning opportunities outdoor environment offers.

Anthony Watt
Anthony Watt is a Senior Lecturer of Physical Education at Victoria University. His research work is in the design and development of assessment instruments in physical education and sport psychology. His teaching focuses on the key areas associated with the teaching of physical education at the primary and secondary school levels.

Paul Webb
Dr Paul Webb has presented at numerous workshops on Teaching Games for Understanding (TGFU) for teachers in New South Wales many of which were organised by
Author Biographies

ACHPER. He has received the Confederation of Australian Sport's distinction award and the Australian Sports Commission Eunice Gill Coach Education award.
real career opportunities

The School of Human Movement Studies delivers courses that offer a balance of theory and practice. Students are taught by leaders in the fields of health and physical education (HPE), exercise science, human health and wellbeing, and injury prevention and rehabilitation. With access to state of the art facilities and opportunities to gain experience in a variety of health clinic settings, our students are equipped for challenging roles as HPE teachers, exercise physiologists, corporate wellness consultants, exercise and sports scientists and strength conditioning specialists.
research solutions

Human Movement Studies researchers are working with industry partners to develop exciting projects for long term community benefits in exercise physiology, functional anatomy, nutrition, personal health, energy metabolism, biomechanics, motor control and psychology.

Some of the current projects include:

Prevention of Injuries in older people, Associate Professor Graham Kerr
Established to improve our ability to predict older peoples at risk of falling, identifying methods to prevent falls, and developing screening tools and safer shoes. Develop a program that accurately identifies older drivers who are not capable of safe driving due to visual, cognitive or sensorimotor impairments.

Motor Function in Parkinson’s Disease, Dr Charles Worthingham and Associate Professor Graham Kerr
Established as a partnership between Parkinson’s Queensland and the School of Human Movement Studies this is a long term project to collect data on motor function in people with Parkinson’s Disease and to determine risk factors for falls in these people.

Motor Control, Professor Keith Davids and Dr Ian Ramsay
Focus on the areas of motor learning and control, specifically applying a Dynamical Systems and Ecological Psychology approach to sport and physical activity.

Energy Metabolism Research Group, Professor Andrew Hill, Associate Professor Nuala Byrne, Associate Professor Neil King
Develop new ways to prevent, treat, and manage obese children, adolescents, and adults by measuring energy expenditure during exercise and physical activity, researching co-morbidities of obesity including diabetes and osteoarthritis and understanding people’s susceptibility to weight gain including psychological and behavioural causes.

Thesis Biomechanics, Dr James Smeathers
Analyse the influence of stress history, age, and disease on connective tissues and developing ways to prevent injury that has resulted because of sport field surface properties, exercise, and occupational factors including posture.

Physical Activity in Children, Dr Tom Cuddihy
Examines the relationship between physical activity and long term good health in both the adult and paediatric populations and considers new methods for obtaining this data.

relevant courses

In 2010 the School of Human Movement Studies is proposing to introduce two new undergraduate programs to replace the current Bachelor of Applied Science (Human Movement Studies).

- A new three year degree designed for students who wish to pursue a career in corporate and community health or with sporting associations. It also suits students who wish to continue with postgraduate, research, or related clinical degrees.
- A clinically-orientated four year degree designed for students interested in careers as Accredited Exercise Physiologists managing exercise programs for people with cardio respiratory, metabolic, musculoskeletal, neurological, and psychological disorders.

Students wishing to pursue double degrees can pair the three year degree with a course in nursing, public health, psychology, nutrition and dietetics, education, and business.

For more information on new and updated course offerings visit www.studyfind.qut.edu.au

real world facilities

The newly constructed QUT Health Clinics operate out of 44 Musk Avenue, Kelvin Grove.

Two Human Movement Studies programs are currently operating out of the Clinic:

- Health and fitness screening of Queensland Ambulance Service paramedic applicants;
- Exercise design for the elderly who experience musculoskeletal difficulties and similar conditions. Planning for the introduction of additional exercise rehabilitation services is underway.

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Creating Active Futures: Edited Proceedings of the 26th ACHPER International Conference is an amalgamation of research and professional perspectives presented at the conference.

This volume is divided into sections based on the five conference themes:

1) Issues in Health and Physical Education (HPE) Pedagogy; a diverse set of perspectives on teaching HPE with papers from a range of topics that include first aid, philosophy, access, cultural characteristics, methods and teaching styles, curriculum, qualifications and emotional development.

2) Practical Application of Science in HPE; links science to teaching HPE and provides a range of valuable information on injury prevention, information technology, personality and skill development.

3) Lifestyle Enhancement; a collection of writings and research about Lifestyle Enhancement. Topics include the important role of adventure, the natural world, curriculum, migrant viewpoints, beliefs and globally focused programs in the development of active citizens.

4) Developing Sporting Excellence; contains papers that undertake to explain an aspect of excellence in sport.

5) Contemporary Games Teaching; highlights some contemporary views on teaching games.

Copies can be obtained free from:

Queensland University of Technology

Australian Council for Health, Physical Education and Recreation (ACPER)
http://www.achper.org.au/conferences-events/conference-proceedings