Values into Action - A Brighter Future

29th ACHPER International Conference

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South Australia Branch Inc.

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Disclaimer

The papers published in this document have been carefully peer reviewed by independent and qualified experts.

The Editor wishes to make it clear that whilst the strict peer review process has been applied to all published papers, due to the multi-disciplinary and International nature of the conference, the Editor has accepted a variety of International styles such as reference structure and spellings. Author acknowledgements are based on the information provided at the time of submission.

Australian Council for Health, Physical Education and Recreation, SA Branch Inc.
ACHPER (SA)
105 King William Street, Kent Town SA 5067
Telephone: +61 8 8363 5700 Facsimile: +61 8 8362 9800
Email: info@achpersa.com.au Website: www.achpersa.com.au

ACHPER (SA) - *Promoting Active and Healthy Living*

A Message from Dr Shane Pill, Conference Chair

On behalf of the Conference Organising Committee of the 29th International Conference of the Australian Council for Health, Physical Education and Recreation, I recommend the proceedings of the Adelaide conference to you. The theme of the 2015 Conference, Values into Action – A Brighter Future, reminded us of what we should aim to strive for in our teaching and learning, the challenges facing our area in demonstrating educational creditability, and what is unique about Health, Physical Education, Recreation and Sport in school and in life. The papers forming the 2015 Conference Proceedings speak to both the challenges and to the triumphs occurring across ACHPER's focus areas – health, physical education and recreation/sport.

I am indebted to the colleagues who have rallied to the call to organise the conference. In particular, the Conference Organising Committee: Russell Brown, George Evreniadis, Mike George, Janet Harper, Amanda Henry and ACHPER staff Matt Schmidt, Alison Turner, Rick Baldock, Anna Colley, Rhiannon Dodd, Megan Mattin and Tegan McClean. My thanks also go to those who assisted Professor Murray Drummond on the Academic/Scientific Committee in reviewing abstracts and papers that have resulted in these conference proceedings.

We are delighted that we attracted international and national keynote speakers to present across ACHPER's focus areas, and other international, national and local experts were attracted to present at the conference. Thank you for your support. It made possible a broad ranging program catering for the academic interest and the practical purposes of the wider profession in one conference - academics, teacher educators and school teachers 'side-by-side' at a conference is quite special in professional development/learning. The ACHPER International Conference is unique in Australia in bringing teachers, sport, health and recreation professionals and academics together in shared professional learning.

On behalf of the Conference Organising Committee, I trust your stay in Adelaide was enjoyable and the attendance at the conference personally and professionally rewarding. We look forward to you joining us at a future ACHPER event in South Australia.

Dr Shane Pill, *29th ACHPER International Conference Chair,*
ACHPER (SA) President 2002 - 2015, ACHPER Life Member

A Message from
Professor Murray Drumond,
Academic Program Chair

Values in Action – A Brighter Future

The 29th ACHPER International Conference represents an important time in the learning area of Health and Physical Education (HPE). Arguably the peak international HPE 'industry' conference set within Australia, the conference has provided the opportunity for researchers, teachers and practitioners in the field of HPE to voice their concerns and highlight the many positive aspects of HPE in Australia and throughout the world. Indeed, we were fortunate to have in excess of 35 presentations from International delegates alongside 160 National presentations, making this a truly International conference.

We are currently amidst a time of immense change not only in HPE but also within society more broadly. Our children are facing a rapidly changing social and cultural environment that is placing significant challenges upon their personal, emotional and physical health. Health and Physical Educators are often at the centre of trying to quell these challenges thereby placing demands on the teachers and the learning area generally. We can only move forward as a learning area by conducting, presenting and acting upon high quality research, such as the research within papers presented at the 29th ACHPER International Conference in Adelaide.

It is with great pleasure that the Academic Program Committee present this edited book of proceedings to reflect some of the wonderful research that is being undertaken in the HPE learning area nationally and internationally. As the chair of this committee I would like to thank the entire committee for their diligent work in making this book of proceedings such a success. I would also like to thank the all of the reviewers who gave up their time and provided their expertise in reviewing abstracts and full papers. We hope that you enjoy the depth and breadth of research presented within this proceedings.

Professor Murray Drummond, *29th International Conference Academic Program Chair*
Director SHAPE Research Centre, Flinders University

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ACHPER (South Australia) Office:
105 King William St, Kent Town, South Australia
Ph: 08 8363 5700
Fax: 08 8362 9800
Email: info@achpersa.com.au
Web: www.achper2015.com

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Keynote Speakers

Professor Richard Light is Professor and Head of School: Sport and Physical Education at The University of Canterbury, New Zealand. He was previously Professorial research Fellow at Federation University Australia, held the 75th Anniversary Carnegie Chair in Sport Pedagogy at Leeds Metropolitan University and was at the Universities of Sydney and Melbourne. Influenced by his background in teaching and coaching in Australia and Japan, Richard's work is always grounded in practice and characterised by a dialectic or conversation between theory and practice. Although his research is typically strongly theorised he is always ready and able to roll up his sleeves to take a practical session. He is well known for his research on and development of, Game Sense and Teaching Games for Understanding (TGfU).

Richard was a foundation member of the TGfU Task Force formed in 2002, convened the 2nd International TGfU Conference (Melbourne, 2003), TGfU Symposia at the AIESEP World Congress in 2006 (Finland) and 2008 (Japan), the 2008 ISCPES conference (Macau) and the 2006 Asia-Pacific Conference for Teaching Physical Education and Sport for Understanding (Sydney). He was Invited Professor in France (2007), Canada (2009) and Japan (2013), has conducted Game Sense workshops in Australia, the UK, France, Portugal, China, Macau, Japan, Canada, Taiwan and Hong Kong and is regularly invited as a keynote and invited speaker at international conferences across Asia. Widely published in sport and physical education pedagogy, he is author of Game Sense: Pedagogy for Performance, Participation and Enjoyment (Routledge, 2013), lead editor for Contemporary Developments in Games Teaching (Routledge, 2014) and lead author for Advances in rugby coaching: An holistic approach (Routledge, 2015). Richard's keynote topic was 'Don't stop now! Developing skill execution through Game Sense'.

Griffin Longley is the CEO of Nature Play WA, an award winning journalist, a weekly columnist, the manager of a program for at risk kids in the Midland area called Night Hoops, and the father of two girls.

Prior to taking the taking on the role of helping build Nature Play WA from a thought bubble at The Department of Sport and Recreation Griffin had spent seven years as a news and business reporter, a feature writer and columnist with The West Australian Newspaper, and before that had been a stonemason, a cook and even had a short and inglorious basketball career in the NBL.

In 2010 a column he wrote titled "In Praise of Disorganised Sport" led the Department of Sport and Recreation to invite him to take part in a think tank on nature play and eventually to take the reigns of the fledgling organisation. Nature Play WA is now a successful organisation with an international reputation for innovative programs that increase awareness of the benefits of unstructured play outdoors.

The organisations flagship program, the Passport to an Amazing Childhood, provides hundreds of outdoor activity ideas and bridges the divide between the digital world where modern children spend so much of their time and outdoor play and has been delivered to more than 165,000 WA children in less than two years.

Professor Kevin Norton completed a physical education degree with a second teaching area in science. A strong interest in physiology and performance research led to a PhD at the University of Georgia. Kevin has been an academic all of his professional career but has had industry involvement with a 3-year secondment to Sport Knowledge Australia [Commonwealth funded International Centre of Excellence in Sports Science and Management], and a sabbatical with Human Kinetics in Illinois to develop sports science software. He has had numerous consultancies with professional sporting bodies including the AFL for 14 years as well as research projects funded by the IOC, ASC and IRB. He had a game-day role as performance analyst with the Adelaide Football Club for 7 years and is currently working with the Port Adelaide Football Club to develop an industry-based Masters of High Performance Sport course together with the University of South Australia. Kevin has published over 140 research papers, several books and a range of commercial software products. These include fitness programs for primary children, interactive sports science tools for secondary students through to professional products for clinical exercise physiologists and other health practitioners.

Keynote Speakers

Robert Randall was appointed as Chief Executive Officer of the Australian Curriculum, Assessment and Reporting Authority (ACARA) in November 2012. He has worked at ACARA since 2009 and was previously Deputy CEO and General Manager, Curriculum, of ACARA. He was previously General Manager of the Interim National Curriculum Board.

Robert has significant experience and success in curriculum, assessment and reporting projects, from design through to implementation, at both state and national levels. His most recent achievement has been to lead the development of the F-10 Australian Curriculum in English, Mathematics, Science and History which are at various stages of implementation across Australian states and territories.

Robert began his career as a teacher of mathematics in Perth before holding a range of positions within and beyond schools in Western Australia, including Project Leader, Monitoring Standards in Education, Manager, Assessment and Reporting with the Education Department and Principal Consultant with the Interim Curriculum Council of Western Australia. In 1996 Robert was appointed Director, Curriculum, with the NSW Board of Studies and in 2001 took up the position of Director of Curriculum K-12 with the NSW Department of Education and Training. Robert's keynote topic was 'A national health and physical education curriculum - what difference will it make?'

Alfred Deakin Professor Jo Salmon's research focus is on promoting physical activity and reducing sedentary behaviour among children and youth. She has been a Chief Investigator on 24 nationally-funded studies worth >$11.6 million and 12 international studies worth US$6.7 million, and has been conducting research with schools and families for 15 years. Her studies have involved developing and testing strategies to reduce children's discretionary screen time at home (Switch-Play, 2008), and examining the efficacy of pedagogical and environmental changes in the school environment to reduce sitting time and increase physical activity during class time, recess and lunch breaks as well as after school hours (Transform-Us!, 2009-2013). Jo is Deputy Director of Deakin University's Strategic Research Centre for Physical Activity and Nutrition (C-PAN), which has more than 65 academic members of staff. She also holds a National Health & Medical Research Council Principal Research Fellowship which supports her in a full-time research role, and is President-Elect of the International Society for Behavioural Nutrition and Physical Activity which has more than 600 members. Jo has played a key role in the development of the Australian Physical Activity Guidelines for 0-5 year olds and 5-17 year olds (updated in 2014).

Jan Stirling is one of the most motivating sporting personalities in Australia. Jan's life has been defined by basketball, beginning as a 13 year old in the ABA. She was a member of the Australian team between 1974 and 1978, during which time she took part in the 1975 World Championships. But it is in the role of coach that Stirling has left her legacy.

Four WNBL titles as coach of the Adelaide Lightning in the 1990's led to the role as head coach of the Australian women's basketball team in 2000. In 2002 the Opals collected the bronze medal at the World Championships, following that up with silver at the Athens Olympics and gold at the 2006 World Championships and Commonwealth Games. In 2006 Jan was named "International Coach of the Year". And in 2008 was awarded an AM for her services to women's basketball as an elite coach and player, and as a contributor to professional development and the community.

In 2009 she was a Consultant to the Russian Basketball Federation working with both their National Junior and Senior Women's Program. From 2010-2012 Jan was the High Performance Director for the Australian Wheel Chair Women's Paralympic Team. In 2010 she took up a Consultants role at the Port Adelaide Football Club assisting with coach and leadership development. Jan's ability to communicate at all levels see's her just as comfortable helping coaches and players at junior grass root level or at the elite level.

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Keynote Speakers

Professor David Walsh is a professor in the Department of Kinesiology at San Francisco State University in California (USA). He specializes in physical activity-based youth development programs in underserved communities. In particular, he has almost 20 years of experience with the development, implementation and research on Hellison's Teaching Personal and Social Responsibility (TPSR) Model. In 2009 he was awarded the American Alliance for Health, Physical Education, Recreation and Dance, Social Justice and Diversity Young Professional Award. He has also written more than 20 book chapters and articles in scholarly journals on topics such as the transference of youth program goals from the physical activity setting to the school environment, innovative strategies for helping underserved youth envision positive possible futures for themselves, program processes and outcomes for the youth participants, and alternative curricular model approaches for teachers and youth workers. He has conducted presentations and workshops in several of the United States and internationally in Australia, England, New Zealand, Portugal and Spain.

In his keynote session, David talked about his experiences as both a practitioner with youth and professor using Hellison's TPSR model in various programs in Chicago and San Francisco. He highlighted the goals and strategies of this values driven model, and in addition provide a daily format for practical application. He also talked about his own extension and vision of TPSR through a current youth program over the past four years, called the "Kinesiology Career Club".

23rd Fritz Duras Memorial Lecture

The 29th ACHPER International Conference was proud to host this year's Fritz Duras Memorial Lecture. The orator of the 2015 lecture was Dr Graham Dodd and his presentation featured 'The Unrealised Value of Human Motion: the opportunity of a lifetime.'

Dr Graham Dodd taught at Unley High School, served in the Physical Education Branch of the SA Education Department, and then was Senior Lecturer & Program Director of Secondary PE/Human Movement at the University of South Australia.

Throughout his professional career, Graham was co-founder of Kindergym Australia (1980), co-creator of the Jump Rope for Heart program & schools resources (1983) & co-founder of PE Week Australia (1984). He was national coordinator & co-author/editor of the ACHPER Daily Physical Education Program (1978-84), & principal author/editor of the SACSA HPE Frameworks (1999-01). In 1990 he created the company TriSkills Australia to provide schools with support in HPE which currently operates in Adelaide, Melbourne & Sydney. He is also a winner of the 2006 Individual Carrick Award for Australian University Teaching, and is a Fellow and Life Member of ACHPER. He is currently Director of TriSkills Australia and Vice-President of ACHPER National.

Graham has had longstanding research interests in the role of human motion in the healthy social, physical, emotional, cognitive, and physiological growth and development of individuals across the lifespan, which he has written about in his book 'The Value of Human Motion'. His current focus is on the emerging global research evidence connecting human motion, cognitive (brain) development, enhanced learning & healthy optimal human development, which forms the basis of his Fritz Duras Memorial Lecture which is titled 'The Unrealised Value of Human Motion: moving back to movement'.

Conference theme and sub themes

The Conference theme was 'Values into Action - A Brighter Future' with the sub themes listed below. Presentations were structured in concurrent sessions of 4 x 20 minutes, 45 minutes or 90 minutes in length.

Conference sub-themes

- The educative purpose of HPE
- Strengths based HPE
- Learning in, through & about movement
- Health literacy
- Critical inquiry and problem solving in HPE
- Sport Pedagogies

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The "integration of theory and practice" as a central focus for senior schooling Physical Education

Andrew Jones & Professor Dawn Penney
Edith Cowan University, Perth & Monash University, Melbourne

In February 2007 a new senior secondary Physical Education Studies (PES) was introduced in Western Australia (WA). The course was one of approximately 50 new courses that were developed in conjunction with the introduction of new Western Australian Certificate of Education (WACE). Notably, the rationale for PES claims that the "integration of theory and practice is central to studies in this course" (Curriculum Council of WA, 2009, Physical Education Course Syllabus, p. 2). This paper draws on findings from an ongoing PhD study to examine the notion of integrated theory and practice in the context of senior schooling. It will acknowledge that pedagogy is not a discrete entity, and is influenced by a range of different factors, not least in senior schooling, examinations. The paper initially draws on literature addressing pedagogical practice in physical education (PE) in senior schooling, as a backdrop to the case for "the integration of theory and practice" (in the context of PES in WA) and briefly reports on how this was progressed in the initial course design and then subsequently during implementation. Attention then focuses on a series of case studies which reflect the ultimate aim of the study, that of identifying legitimate and original practice in the field of senior school PES, and specifically integrated theory – prac pedagogy. The paper discusses different ways in which integration has been interpreted and enacted in the case study schools and the factors influencing the various approaches and responses identified. This paper extends insights into the various discourses impacting integration and highlights the need for more work that engages with the complexities of how curriculum and assessment discourses can be effectively mediated through pedagogical practice.

Introduction

In February 2007 a new senior secondary Physical Education Studies (PES) course was introduced in Western Australia (WA). The course was one of approximately 50 new courses developed in conjunction with the introduction of new Western Australian Certificate of Education (WACE). The changes arose from a review of post-compulsory schooling (later to be renamed Senior Schooling) which identified the need for greater alignment between senior secondary education and Kindergarten to Year 10 curriculum; a broadening of the range of tertiary entrance options and subjects available to students; and a rationalisation of course structures, assessment systems and subject selection criteria in senior secondary education (Curriculum Council of WA, 2002; see also Penney & Walker, 2007). For the first time in WA, achievements in PES would be recognised for tertiary entrance. As discussed elsewhere (Penney & Hay, 2008; Penney, Jones, Newhouse & Campbell, 2012), this presented challenges and opportunities for the new course development, including how to address a

recurring issue in physical education (PE) internationally, of how to effectively integrate *theoretical* and *practical* dimensions of learning and legitimise "multiple ways of knowing" (Brown & Penney, 2013) in senior secondary and/or examination courses[i].

This paper draws on findings from a doctoral research study that is investigating this issue amidst ongoing curriculum change and reform, specifically in the context of the initial years of implementation of the new PES course in WA. Following MacPhail (2004), Bernstein's (1990) model of the social construction of pedagogic discourse has been used as a framework to locate and position teachers in relation to other stakeholders in the design process and implementation phase. The study comprises three phases that have addressed different sites of influence upon teachers' thinking about prospective integration of *theory and prac* in the new PES, and explored how integration is being developed in practice. Previous presentations (Jones & Penney, 2013) and work in progress has directed attention to issues and influences surrounding the development of the PES official course text. This paper pursues the case study phase of data collection, where the focus has been on teachers' interpretations and enactment of the new PES course.

The paper necessarily begins by providing some essential background to the research, specifically in regard to the new PES course and the theoretical frame for the study. We discuss selected literature in PE associated with senior schooling as a backdrop to a presenting a definition of integrated theory and practice. Details of the methodology and data gathering methods employed are provided, before drawing on data from a series of case studies, to discuss the different ways in which 'integration' has been interpreted and enacted in schools and the factors influencing the various approaches and responses identified. Finally, discussion returns to further explore the various discourses impacting integration and highlights the need for more work that engages with the complexities of how curriculum and assessment discourses can be effectively mediated through pedagogical practice.

Background and development of the new PES course in WA

Published in 2002, the document "*Our Youth Our Future. Post-Compulsory Education Review"* (Curriculum Council of Western Australia, 2002) provided recommendations that became the key point of reference for the reform of senior secondary schooling in WA and development of some 50 new courses, including PES. The process of producing the new PES official text reaffirmed the political and contested nature of curriculum development. This paper does not pursue the official text development but rather, is concerned with interpretation and enactment of the new PES course.

The PES course content was outlined in relation to three content areas: (i) movement, skills, strategies and tactics; (ii) physiological dimensions; and (iii) social dimensions. A notable feature of the PES course in WA (particularly in relation to the interest in prospective

integration of theoretical and practical knowledge) is that all units of study address each of the three content areas. The design thus sought to prompt teachers and students working at any level to explore connections between the three content areas, with depth and complexity increasing in more advanced units.

Assessment arrangements play a critical role in shaping teachers' thinking about the nature and content of the teaching and learning experiences they will develop within a senior secondary PE context. The new PES course in WA prescribed three types of assessment to be used in school based assessment:

1. Performance/Response: The assessment of students engaged in an activity, on-the-spot evaluation of performance and student reflective response about their forms and settings;

2. Investigation: Investigation of own and others' current participation in physical activity, participation potential, physical activity issues and social contexts; and,

3. Response: Students apply their knowledge and skills when analysing and responding to a series of stimuli or prompts. (Curriculum Council of Western Australia, 2008, p.9)

The external examination comprised a written paper with a weighting of 70% and a practical examination weighted 30% of the total mark. School based assessment marks are scaled against the external examination score, highlighting the importance of the examination component. The course document did not prescribe the physical activity contexts through which course content should be taught and/or assessed for the school-based component of assessment. Hence, from a teaching and learning perspective teachers were left to make local decisions about the sporting and physical activity contexts that they would use to illustrate and explore content, both practically and theoretically. The nature of the units (incorporating multiple areas of content) and the assessment types identified above clearly established potential for the integration of theoretical and practical dimensions of learning in PES. Specifications developed for the practical element of the external examination in 2008 did, however, detail 14 sports that students could select from as the context for their "performance assessment" in the examination. This could be the same activity as that featuring in the units studied at school, or a different activity.

This research study has addressed the following three research questions:

Q1. What were the discourses that formed the policy principles from which the PES was designed, and why was there a particular "central" focus on the "integration of theory and practice"?

Q2. What texts and "local translations" (Fullan, 1999) of the PES central focus, to integrate theory and practice, have been made at "intermediary sites" (Hargreaves, 1986) during initial implementation?

Q3. What integrated "theory and prac" pedagogical practice has emerged from the implementation process?

This paper reports on data pertaining specifically to questions 2 and 3.

Conceptual Framework - Bernstein's (1990) model of the social construction of pedagogical discourse

The questions above reflect that the study has drawn upon Bernstein's (1990) model of the social construction of pedagogical discourse, with the intent of extending understanding of the discourses, processes, texts and "translations" that formed course design and implementation, and in turn planning for teaching, learning and assessment. The findings reported in this paper relate to actions and influences relating to the development and enactment of the new PES course that are associated with what Bernstein (1990) termed the Official Recontextualising Field (ORF), the Pedagogic Recontualising Field (PRF), and the "secondary field". In the context of PES, the recontextualising fields centre on organisations and agencies such as the Curriculum Council of WA (now the School Curriculum and Standards Authority (SCSA), various educational systems and sectors and the States Tertiary Institutions. Other agencies active in these fields include ACHPER WA, commercial textbook providers, and local Health and Physical Education (HPE). School based teachers are considered the prime agents in the "secondary field". Bernstein stresses that the actions, negotiations and decisions within the recontextualising fields and between those fields and the secondary field, are critical in gleaning a true understanding of pedagogical practice. The emphasis is that discourses flow between fields and are changed in this process. Time and space precludes further exploration of Bernstein's model but the authors lent heavily on the work of Bernstein (1990), MacPhail (2004), MacPhail and Halbert (2005), Penney (1998, 2013), Penney & Chandler, (2000), and Penney and Evans, 1999, in framing this study.

Integrated and interrelated practice in Physical Education

Past studies in senior secondary physical education (Penney & Kirk, 1998; Thorburn, 2007) have noted that amidst curriculum changes, teachers typically felt comfortable in using familiar pedagogy practices and/or were slow to evolve, or adapt existing pedagogies. A key issue in this regard is the pedagogical linkage of knowledge and understanding to and in practical settings. Macdonald and Brooker (1997), Hay and Penney (2009), Brown (2013), Brown and Penney (2013), Thorburn (2007) and Thorburn and Collins (2003) all recognise Arnold's 1979 and 1985 work as continuing to be a useful reference point for "situating physical activity as a site for learning and assessment, and promoting integrated thinking

about content and contexts of learning in PE" (Hay and Penney, 2009, p.393) and pedagogy to support it. Space prevents a detailed review of Arnolds conceptualisation of "in, through and about" movement, but we support Brown's (2013) call for his original work to be revisited. Importantly for this study, Arnold emphasises that there is a connection between participation *in* movement (through the body) and understanding it (through rational knowledge). In the context of this paper and the broader study, it is this connection or *integration* that forms the basis for a working definition of integrated theory and practice as; an understanding *about* theoretical knowledge and principles developed and utilised *in* and *through* practical activities, contexts and situations. As such theory and practice are *interrelated* and *integrated*. Hay and Penney (2009) similarly referred to the "interrelatedness of knowledge, process (cognitive and motor), skills and the affective domain" (p.395). This study has explored the ways in which this notion has been expressed in the development of the new official curriculum text for PES in WA, and in subsequent interpretations and enactment of the text.

Methodology

Qualitative, interpretative, naturalistic and subjective methods have been utilised in the study. Document analysis and semi structured interviews were used to explore research questions one and two (above). A series of school based case studies, utilising documentary and interview data were undertaken for research question three.

The selection of case study schools emerged from preceding phases of data collection and analysis. In particular, interviewees were asked "Where do we see legitimate and original integrated 'theory – prac' pedagogical practice"? Variously, interviewees were able to offer some teacher or school names, with notable duplication of names offered occurring. Based on these purposeful sampling was used to approach four schools (note at the time of writing only three of the four case studies had been completed. For the purpose of this paper they are referred to as **Schools A, B and C)**. In accordance with institutional ethics approval that had been previously granted, consent for participation was gained from relevant Principals and PES teacher(s). The sample schools represented a cross section of system and sectors (State Government, Catholic and Anglican), and included three metro and one country WA school. One teacher from each school was represented. Documentary data comprised unit plans, assessments and tasks, including marking keys and/or rubrics. Semi-structured interviews with teachers were recorded and field notes were also taken.

Data analysis has centred on the question, *What integrated "theory and prac" pedagogical practice has emerged from the implementation process?* The following section reports findings from three case study schools and focuses on the ways in which "integration of theory and practice" (Curriculum Council of WA, 2009, Physical Education Course Syllabus,

p. 2), has been interpreted and enacted, and the factors influencing the various approaches and responses identified.

What is integrated theory and practice?

All case study school teachers were asked to clarify their understanding of the phrase "Integration of theory and practice". Importantly the reader should understand that the PES syllabus, while claiming that the "integration of theory and practice is central to studies in this course" (Curriculum Council of WA, 2009, Physical Education Course Syllabus, p. 2) does not define this phrase or provide any specific guidance to its role in course design, assessment or teaching and learning practices in the syllabus. In interviews teachers were able to articulate their understanding of the phrase.

School A understood the "integration of theory and practice" to be "about experiences", and the "consistent application and practice of content through experiences, as well as written consolidation. Students need to experience it and then put it into practice**". School B** shared the emphasis on practical experience, activity and application but clarified that "theory is the content of the syllabus, therefore integration of theory and practice is activity that supports the students understanding of the content" and importantly "motivates them to learn the syllabus content". Similarly for **School C** practical application is central, adding, however, that integration is a two way process, stating, "theory is knowledge, practice is practical application. It's doing and applying knowledge to doing and vice versa. It's theory to practice and practice to theory". Importantly for this school understanding is not limited to syllabus content alone. They made the point that "the theory does not have to be syllabus content……I am interested in the kids viewing this course from a number of lenses which are content based, but also "what do the examiners see when you perform or write something done? I want my kids to understand the examination process as well and apply that knowledge to their written and practical performance".

The "Integration of theory and practice" in course design, assessment and pedagogical practice

While there are some synergies between the above understandings of the phrase "integration of theory and practice", the articulation of these in teachers' course design, assessment and pedagogical practice, differed considerably.

The teacher from **School C** indicated that the integration of theory and practice was a "fundamental feature in planning considerations" and stated, "the unit is mapped out to include syllabus content, aligned to a practical illustration or a practical session". Pragmatically and to promote flexible practice, students were required to come to PES in PE uniform even when timetabled in a classroom. "Free space" around the school, such as the unused corner of an oval, pool stand or spare tennis court, were used on an ad-hoc basis. The

teacher felt that this flexible approach to location reflected and supported the integration of theory and practice. Pedagogically, "I think I do it day in day out. I start most, but not all, lessons with a practical based example of what I am going to focus on. It might be a few balls spinning out in the yard or a bit of You Tube in class or quickly on my ipad. Whatever, it's something practical that they see or do". The teacher was keen to point out that their approach is firmly grounded in student's needs but also has a pragmatic aspect in that, "it's not the (exam) paper itself that requires theory into practice, that's not solely why I teach the way I do. I am not teaching to the test, I simply think my students learn best like this. Also, it's like raising the dead some time, so getting them up doing something is a necessity as well".

Broadly, the assessment schedule at **School C** included aspects of the integration of theoretical and practical components of the syllabus. For example, on two occasions practical performance tasks act as both assessments of practical skills, and also a data gathering exercise for a separate task. Another required students to use two performance analysis models and, in short, collect data, analyse self and others, apply theoretical "subdisciplines" and design an intervention applied through identified relevant coaching methods.

In **School B**, articulation of the phrase "integration of theory and practice" typically manifested itself by "flip flopping between theory and practice". This took two forms; firstly, adhoc "flip flopping" where interrelated principles such as exercise physiology and motor learning are linked. Secondly, through the timetabling of classes where across a week, one theory/prac lesson per week is scheduled, alongside two "theory" lessons and one practical performance session. In this way a conscious attempt was made to integrate theory/prac, not necessarily in relation to content strands (e.g. Biomechanics to Exercise physiology) but in teaching and learning approaches, such as unassessed lab activities. The assessment schedule in **School B** had a heavy bias on examination style tasks for students, including "investigations". Typically, assessment tasks had a discrete focus. Practical stimulus and examples of performance based data were used for most exams and investigation tasks, but they were not related to practical movement experiences and/or to school based practical performance sessions.

In **School A,** there was little evidence of planned integration of theory and practice or theoretical content strands, either in the unit outline, pedagogical practices or assessments. There were plenty of examples of practical or "sport" based examples used to illustrate propositional knowledge or to act as a prompt in a task or a stem to an exam (for example; the Olympics and Soccer World cups in different continents as contexts for a tasks on competing in varying environmental conditions) or test style question (for example; photographic stills of a Badminton serve as a basis for a question on segmental interaction). Practical performance sessions in Volleyball were used on an ad hoc basis to illustrate "theory" covered elsewhere, but this was not embedded in the unit outline. Practical

performance tasks were typically skills based, reflecting the tasks within the practical examination. Typically, "response style" or examination focused questions featured in written assessment. For "investigations" students were given questions to research, before answering short and long answer questions in class.

Factors influencing the approaches and responses identified.

This section provides a synopsis of some factors influencing the approaches to the delivery of PES in WA, and more specifically the integration of theory and practice in the case study schools. The influence of time considerations, the syllabus design, content and requirements, and the external Australian Tertiary Admissions Rank (ATAR) examination for PES are discussed. This is not an exhaustive list of influences and reflects limitations of space. The influence of other factors including professional development, text books, sample exams, support materials and individual school imperatives are acknowledged and will be discussed elsewhere.

Time

Time (**School A and B**) was an overriding feature in all facets of PES planning, including time to plan lessons, prepare resources, mark work, and to get through syllabus content. Significantly, integrated theory and practice is considered time consuming in terms of time taken to teach and prepare. There was a significant emphasis on "teaching to the (ATAR) test" in terms of the approach taken to planning, sequencing content and the nature of assessment tasks. Propositional knowledge in the syllabus was taught in order of perceived degree of difficulty, as related to the students, with the easiest content given least time and taught early in the year and the hardest given most time and taught as close to the exam as possible (**School A and C**).

The PES syllabus

The PES syllabus emerged as a major sticking point in the promotion of an integrated theory and practice approach (**School A, B and C**). Reasons for this included, firstly, a major emphasis placed by the School Curriculum and Standards Authority (SCSA, formerly the Curriculum Council of WA) on testing the PES syllabus content. Teachers felt that despite the rhetoric in the course Rationale, the syllabus does not require students to integrate theory and practice (**School A and B**). Further, the syllabus does not provide specific guidance or sign-posts to teachers towards the integration of theory and practice. Hence, schools often do not approach it in that way (**School A, B and C**). Secondly, assessment types can be broadly interpreted and adapted (e.g. **School A** where "investigations" are turned into tests). The integration of theory and practice is not seen as a central feature of assessment and the rationale is a part of the syllabus that is not read widely (**School A and B**). As a consequence, teachers feel compromised and favour pragmatic considerations in their design of assessment.

The PES ATAR Examination

The PES ATAR exam was considered a "knowledge based" (**School C**) one , which requires students to "hit the marks" (**School A**) by using key syllabus based terminology. Many school assessments are overtly designed to reflect the fact that students will ultimately take the PES ATAR exam (**School A, B and C**). Consequently, maximum weightings are offered to "response" (**Schools A, B and C** all offered a maximum 50% weighting to "response"), while aspects of investigation also reflect test like conditions (**School A and B**), variously taking the form of in class essays to simulate the ATAR exam and "save time" (**School A**).

Discussion

Space precludes detailed analysis of the findings above with reference to the theoretical frames used in this study, or in-depth discussion of data in relation to different understandings of "integrated theory and practice" in PES in WA. The following discussion points are necessarily selective and are intended specifically to support professional engagement with issues pertinent to senior secondary physical education teaching in schools throughout Australia and internationally.

The data highlights that broadly speaking, in Arnold's terms, teachers see the "integration of theory and practice", in the following terms: theoretical knowledge (syllabus content) *about* movement (practical) should be taught *in* and *through* practical activities and examples. This recognises some possibilities presented by Arnold's conceptualisation, but at the same time overlooks other pedagogical possibilities and echoes Thorburn's (2007) and Brown and Penney's (2013) call for further exploration of the application of Arnold's work to thinking about curriculum, pedagogy and assessment in senior secondary physical education.

Secondly, the data highlights that it is naïve to believe that the philosophical basis of a course such as the PES in WA will take precedence over pragmatic and accountability features, such as the ATAR exam and Syllabus adherence. Teachers' pedagogy is no "island" and is clearly impacted on by many influences. Teachers (often in response to administrators and parents) in this study were quite openly and understandably seeking to reconcile classroom practice with the needs of their students, in the context of the end game, namely the ATAR exam.

Conclusion

Locating the findings presented here within the broader study, we point to the need for pedagogic practice to be seen in and amidst complex contexts of curriculum development, negotiation and interpretation. In WA we have seen clear tensions emerge between the reform intent, the PES syllabus, guidance and advice issued by various stakeholders, and the format and content of the ATAR exam. The data presented reflects that currently, there is a lack of clarity for teachers in relation to what the pedagogical intent of the new PES is, and further,

there are several factors seemingly inhibiting the development of "integration" as articulated in the course rationale as a central facet of the new PES in WA.

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Exploring secondary physical education teachers' conceptualisation of physical education

Dr Shane Pill[1] & Dr Steven A. Stolz[2]

[1] *Flinders University, South Australia, Australia*

[2] *La Trobe University, Victoria, Australia*

This paper explores Australian Health and Physical Education (HPE) teachers' understanding of the nature of their subject and their interpretation about its particular point and purpose. It is argued that this interpretation will have a direct and/or indirect influence on a range of important decisions, such as understanding the nature and purpose of their subject, content selection, the type of pedagogical approach adopted, and the implementation of curriculum documents. HPE teachers' conceptualisation of HPE will be crucial to the Australian HPE Curriculum acceptance as the new curriculum document and to its adoption into programme planning and enactment by teachers across Australia. Consequently, this research had the broad objective to explore the everyday philosophies of Australian secondary school HPE teachers towards the teaching of physical education (PE) and how this influences the design and enactment of PE in Years 7 to 10. This paper reports on phase one of this research, a survey of (N=112) secondary HPE teachers. The research provides insight into the practical, "everyday" philosophy of Australian secondary HPE teachers which provides practical guides to action as well as their justification for those actions.

Keywords: physical education (PE); secondary PE teachers'; curriculum; pedagogy

Introduction

This paper charts a new direction in Australian physical education (PE) research because it engages with teacher practitioners in order to understand the tension between the educative and physical dimensions of PE. Literature suggests PE teachers fall into two broad categories. These being: (1) those that emphasise the *physical* nature of PE, and who foreground concepts like fitness and physical activity accumulation; and, (2) those that emphasise the educational context of a subject in the curriculum, and who foreground concepts such as personal and social development, thinking and understanding (Kirk, 2010). Indeed, Tinning et al. (2001) concluded that learning in movement would appear to be the traditional focus for Australian PE, however, learning through and about movement is not historically evident in practice. Bailey (2005) suggested that the history of PE is one of a paradoxical tension between learning to move and moving to learn. Gensemer (1991) explained that when the word "physical" is accentuated, the focus tends towards education of the body, and thus PE as a form of training the body. However, we agree with Kirk (2010) that, "the nub of the matter is what people [PE teachers] do with these physical activities" (p. 3).

It would appear that PE teachers have been influenced by powerful social factors, which can account for certain commonalities in practice (see for example Lawson, 1983a, 1983b, 1986; Macdonald & Tinning, 1995; Stolz & Pill, 2014c). While secondary PE teachers obtain a sense of purpose for PE often not found in other subject areas (Kirk, 2010), this passion is suggested as being derived from an "everyday philosophy" (Green 1998, 2000, 2002) shaped by enduring themes (such as sport) and personal experience in sport. Through this study the "everyday" philosophies shaping Australian secondary PE teaching will be revealed, the genesis of the ideologies uncovered and an interrogation of whether educational theory informs what Stolz & Pill (2014a, 2014b, 2014c) refer to as "*interpretative pragmatics*" in this everyday practice. This research is significant in the context of the new Australian curriculum for PE being implemented into Australian schools, and the degree to which it has the potential to influence the everyday philosophies and interpretative pragmatics of the PE teacher can go a long way to understanding the future design and enactment of secondary PE teaching.

Given historical and contemporary criticisms of the design, enactment and substance of Australian PE, it is relevant to explore Australian PE teachers' understanding of the nature and purpose of their subject. For instance, Alexander et al. (1993) suggested an unimpressive picture of Australian secondary PE, where PE teachers lacked "teaching perspectives" and neglected important learning outcomes, while the "self-reproducing failure of physical education" (Alexander et al., 1993, p. 12) was argued to be grounded in a multi-activity curriculum model. More recently, Alexander (2008) in a keynote address, argued that little had changed in Australia since Siedentop and O'Sullivan (1992) found PE to be a marginal subject marked by casual settings, modest learning gains, and programme configurations that are dysfunctional for many students.

As we have argued elsewhere (Stolz & Pill, 2013, 2014b, 2014c), it is the PE teacher who determines the experience of PE as they make valued judgements about content, pedagogy and focus of the subject through pragmatic interpretations of student requirements in relation to their understanding of curriculum frameworks. With the implementation of the Australian curriculum for Health and Physical Education (HPE) from 2014, PE teachers' conceptualisation of PE will be deterministic to both the acceptance of the new curriculum and its adoption. Previous research by Clennett and Brooker's (2006) investigation into teacher adoption of a new PE curriculum in Tasmania suggested that a new document articulating new directions for teaching and learning do not substantially impact the everyday practice of PE teachers, further contextualising the need for this research at this time of curriculum transition.

Ken Green (1998, 2000, 2002) explored United Kingdom (UK) PE teachers' aphoristic "everyday" understanding of the nature and purpose of their subject. Green found the following:

- UK PE teachers' views on the nature and purposes of their subject are ideological rather than philosophical. That is, they are made up of mythical ideas regarding the purported worth of their subject. Subsequently, the ideas appear at times contradictory, partly formed or confused (Green, 1998, 2000); and,
- A continuing pre-eminence of a sporting ideology in the everyday philosophy of UK PE teachers, particularly through sport and team games were "seen as *sine qua non* of the PE curriculum for many, if not, all PE teachers" (Green, 2002, p. 65). Indeed, sport is the enduring ideology, pre-eminent above fitness, health and professional status ideologies central to their lives and professional identities (Green, 2000).

Research of this nature has not been previously conducted in Australia. The research we report on in this paper extends on our previous research (see for example Stolz & Pill, 2013, 2014a, 2014b, 2014c) because it is concerned with researching the relationship between academics as "theory generators" seeking to define what they consider to be the "essential" characteristics or nature of PE, and how PE practitioners as "theory appliers" pragmatically interpret pedagogical models, curriculum documents, and the educational theories that underpin them. Part one of this research – which this paper reports on – consisted of an online survey. The survey provided data enabling consideration of the factors and sources influencing Australian secondary PE teachers' theory, or "everyday philosophy" that explains their situated practice of PE design and enactment. The survey also provided data enabling consideration as to the extent pedagogical models, curriculum documents, and the educational theories that underpin them articulated by scholarly writing influences the design and enactment of Australian secondary PE teaching.

Methodology

Australian secondary PE teachers were invited to participate in an online survey exploring their conceptualisation of PE. The online survey tool used was "Survey Monkey". Invitations to participate in the survey occurred via advertisements placed by the researchers in various Australian professional associations for HPE, such as the Australian Council for Health, Physical Education and Recreation (ACHPER) electronic newsletters, and the social media tool Twitter using the conversation tags #pdhpe, #pechat and #physed. The invitations to participate in the research were posted after ethics approval from each researcher's respective university.

The survey was field tested with a group of PE teachers prior to the surveys release. The online survey began with an explanation of the research and invitation to participate, and explained the option to opt out of the survey at any time during the process of completing the survey as data was not collected until the "submit" function was chosen at the end of the survey. The survey comprised short answer questions, Likert Scale response questions with

the option to also provide comment, and menu choice response questions also with the option to provide comment. The survey was piloted with a group of secondary PE teachers before release. The survey opened in September 2013 and closed in April 2014. One hundred and twelve ($N = 112$) people submitted a response to the survey. Participant data is summarised in Table 1.

Table 1. Survey Participants

112 respondents: 58 female / 53 male
1 completed survey without responses to questions (other than gender) creating an invalid response
111 valid responses

Age	**Number**	
21-29	32	
30-39	42	
40-49	17	
50-59	17	
60+	1	
Total	**111**	
School Setting		
Middle Years	(6-9)	6
Secondary	(7-12)	96
Senior Years	(10-12)	9
Total		**111**

The research used an interpretative methodology with the numerical and written data from the survey treated as qualitative. The data was analysed using Creswell's (1998, 2002) data analysis spiral (Figure 1) to reveal major themes. Creswell (1998) suggests the data analysis spiral drives the analysis process in all forms of qualitative research. In analysis of the survey data collected in this project, this involved a process "of moving in analytical circles rather than using a fixed linear approach" (Creswell, 1998, p. 142). By this we mean we undertook an iterative process of sensitisation to the research data that allowed interpretation to emerge over time; or as Strauss and Corbin (1988, p. 29) describe, being in the "flow of work" where one "spirals" about the research questions using inductive and deductive reasoning. This reasoning initially forms thoughts that develop into codes and then condensing of the data. Eventually, themes are generated that represent the data and enable consideration of the meaning of the representations.

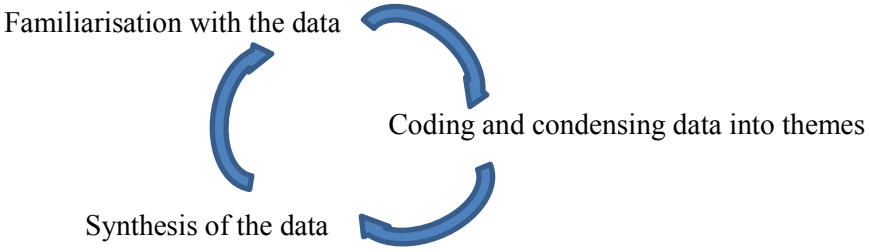

Figure 1. The data analysis spiral for interpretative treatment of the survey research data (Creswell, 2002)

Results

The results of the interpretative analysis of the survey data are summarised in Table 2. Table 2 shows that eight themes emerged. The information indicates that for the respondents, the rhetoric that PE contributes to the development of skills, knowledge and attitudes that promote lifelong participation in physical activity is generally accepted. It is also generally accepted that PE should make a contribution to the improvement of secondary school student's fitness. The continued acceptance of a multi-activity programme model is valued as providing the content variety thought necessary to offer "all" students the chance to experience something they might enjoy, might be good at, and wish to pursue further. PE's distinctiveness from physical training and physical activity provision for recreation purposes as education "about", "through" and "in" movement (ACHPER, 2008; Arnold, 1979) is recognised by most, but not understood, and unlikely to be evidentially in the school programme documents or the enacted curriculum.

Table 2. Survey themes

- Teachers believe that PE develops the habits and patterns of behaviour for long-term recreational physical activity participation.
- Improving student fitness should be a focus for secondary PE.
- Developing skills for community sport participation should be a focus for secondary PE.
- The conceptualisation of education "about", "through" and "in" movement is poorly understood by PE teachers, and frequently not realised in the design and enactment of PE.
- Teachers prioritise student fun and enjoyment of PE teaching.
- Teachers felt variety (offering a diverse programme of activities) is necessary so all students are in a position to find activities they enjoy.
- Personal experience of PE teaching is the main influence on the PE teachers programme and planning decisions, followed by talking with colleagues.
- Researching PE teaching commonly means reading blogs and websites, which are the most common source of information used by the PE teachers to inform their practice.

Discussion

Our analysis of the survey data found that PE teachers' considered the development of habits and patterns of behaviour for long-term recreational physical activity participation to be very important. In fact, some of the respondents' comments would reinforce this notion that PE teachers think that PE should develop relevant personal and social characteristics through long-term physical activity participation, and hence the importance it is assigned in secondary PE. This was noted in the descriptive data found in the comment "Being an active participant, team work and social skills reflect being an active citizen in the community". There was some evidence that teachers recognise a link between the rhetorical emphasis on the development of behaviours for long-term physical activity engagement and programme structure and delivery. For example, in the descriptive data was the comment, "I think it depends on how PE is delivered. PE has the potential to cement enthusiasm for physical activity for life but also has the potential to turn children off physical activity".

Associated with the aim of developing in students the habits and patterns of behaviour for life-long participation in recreational physical activity in this study, there was an associated emphasis on that context being community sport participation. For example, in the descriptive data it was noted; "Lifelong PA should be an outcome; therefore, skills for those who choose community sport should be part of PE". Twelve respondents (*N*=12) selected "No" to the limited response question "Should skills for community sport participation be a focus for secondary PE?" while 32% (*N*=36) selected "Yes" and 56% (*N*=63) selected "Unsure".

The problematisation of the historically common multi-activity curriculum design for meaningful development of PE learning outcomes for many students was noted earlier in the paper. However, "variety" of content seemed to be accepted practice in PE programme planning with respondents, with 0% (*N*=0) responses of "No" to the limited response menu to the statement 'Variety is necessary so all students are in a position to find activities they enjoy', while 43% (*N*=48) responded "Yes". Contrary to this theme, one comment in the descriptive data noted thinking about this planning perspective had changed: "While this [helping students find something they like and want to pursue now or in the future] would have been one of my priority aims when I started teaching I now believe that the development of a positive attitude and confidence is more important in promoting life-long participation".

The descriptive data also highlighted a priority on students having "fun" in PE. Sixty-four respondents or 58% (*N*=64) identified student fun and enjoyment as central to their PE teaching, of which 15% (N=16) respondents selecting student fun and enjoyment as most important to PE teaching. Typical of the descriptive data were comments such as, "... if it is not fun, they will stop wanting to participate" and "PE needs to be enjoyable to ensure high participation". Nevertheless, running contrary to this theme, in the descriptive data it was also

noted, “Fun is not a major priority in my PE class. They are there to learn, in a positive environment. I disagree with the suggestion that it should be ‘all fun’”. In addition to emphasising student enjoyment of PE lessons as a means of motivating positive levels of engagement, improving “fitness” also emerged as theme for secondary PE. Only 15% (*N*=17) of respondents were coded “no” in the descriptive data in response to the question; “Should improving children’s/youth fitness should be a focus for secondary PE?” and there was three individual statements of “not fitness testing” in the descriptive data. In reply to the limited response question “Achievement of high levels of moderate to vigorous physical activity during lessons is important in PE”, 42% (*N*=47) respondents felt achievement of high levels of moderate to vigorous physical activity during lessons is important in PE. Descriptive data related to high importance of moderate-to-vigorous physical activity levels in PE lessons were typically associated with a PE being a response to increasingly levels of student sedentary behaviour. For example, “Increasingly sedentary nature of adolescents means PE has to take some responsibility for getting students to focus on being fit” and “Large rate of obese and unfit teenagers who prefer video games to physical activity”. However, it was also commented that teachers should “Plan for MVPA [Moderate to Vigorous Physical Activity] not fitness” and “the thinking [that students do] is just as important”.

At the time of developing the survey, the *Shape of the Australian Curriculum-Health and Physical Education* paper had been released (Australian Curriculum and Assessment Authority (ACARA), 2012) appearing to emphasis an “Arnoldian conception” (Brown, 2013) of PE as “learning in, about and through movement” (ACARA, 2012, p. 4). The survey therefore inquired into teachers’ familiarity with the conception. The descriptive data suggests Arnold’s (1979) conceptual account of “about”, “through” and “in” movement is poorly understood and unlikely to be evident in programme documents, despite the suggestion that Arnold’s concept is generally accepted as the philosophy of PE in Australia and internationally (ACHPER, 2008). For instance, this line of script in the descriptive data are typical of the descriptive data seeming to confirm that secondary PE teachers’ continue to foreground sport teaching, and that PE is a conservative practice slow to change: “Still in the mind frame of playing sport and that’s it”, and that “when some members of the faculty try to increase meaning of movement/education it is shut down”. It was noted in the descriptive data that interpretation of Arnold’s concept into practice, that “... more guidance and direction would help HPE Coordinators”, while another line of script problematised that PE is “... often not taught [this way] by the teachers as many of them are from an older school of pedagogy”.

The themes which we have shared in the Results and Discussion sections of this paper are developed further in Phase 2 of our research project. Phase 2 involved interviews with teachers identifying themselves as willing to be approached for Phase 2 as part of the survey tool information collection. We note the implications of the comparatively small sample size

relative to the total population of secondary PE teachers in Australia on the generalisability of the results.

Conclusion

Our analysis of the survey data (see for example Table 2) highlighted a number of significant themes. Some of these ranged from PE teachers believing that PE ought to develop the habits and patterns of behaviour for long-term recreational physical activity participation through to PE teachers' engaging with blogs and websites as a common source of information to inform their practice. Although, we were limited by space restrictions in our analysis, we would like to highlight the problematic effect of the multi-activity model of PE which has resulted in the most undemanding of all models of learning and teaching being continued and reinforced within secondary schools. Indeed, we would argue that it is *less* work to maintain the multi-activity model status quo; however, in saying this, we are also cognisant that there are quite complex reasons why secondary PE teachers find it difficult to change their practice. Likewise, our research brings to attention that Arnold's conceptual account of "about", "through" and "in" is not really understood by secondary teachers'. This has significant ramifications to the successful implementation of the proposal Australian curriculum for HPE.

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A Review of the Literature on Outdoor Education in Australian Schools

Scott Polley & Dr Shane Pill
University of South Australia / Flinders University

A review of the literature in this field primarily reveals factors that have impacted on teachers and the teaching of Outdoor Education in Australian schools since 1999, but other relevant historical research is included. 1999 is the year that the last state-wide survey was undertaken in SA and Victoria. The review will show that historically, Outdoor Education has existed in Australia as a recognised subject of study in schools since at least the 1960's (Pickett & Polley, 2001), but using outdoor experiences and activities as part schooling has occurred in Australia since the 1890's (Georgakis & Light, 2010). It has been a senior secondary subject since in South Australia since 1984 (Pickett & Polley, 2003). Reflecting similar developments in New Zealand, the literature reflects that Outdoor Education has been part of both progressive and traditional western curriculum, compulsory and non-compulsory schooling (Lynch, 2009) with great variation from school to school. While Outdoor Education is a compulsory component of some schools it is not a compulsory component of any current state curriculum. It is not a learning area, but is recognised as a component of a learning area (DECD 2004, DECD 2012, ACARA, 2014). In the literature it is sometimes referred to as the verb, outdoor education, to describe teaching other learning areas in the outdoors (Outdoor Education Australia, 2013). Despite the lack of clarity about what Outdoor Education is and the place it has in the curriculum, it is reported as being widespread (Georgakis & Light, 2010: Lugg & Martin, 2001; Polley & Pickett, 2003). However, it is striking is that there would appear to be a weak relationship between curriculum and the practice of Outdoor Education by teachers in schools, as evidenced by the apparent widespread practice of Outdoor Education despite the lack of supporting curriculum documents.

Introduction

Australian Curriculum is changing, and with it the role and place of Outdoor Education (OE) in Australia may change too. There is a need to understand the current nature and scope of OE in Australian schools to advise curriculum decision makers including Universities, Education Departments, school administrators and teachers on the best way forward for this discipline from the current position. This paper reports what is known about Outdoor Education in Australia in the literature, and highlights areas for further investigation to facilitate a more complete understanding of how schools and teachers use Outdoor Education to achieve educational outcomes.

Previous empirical studies based on teachers' responses in Australia and New Zealand (Lugg & Martin, 2001; Parker, 2013; Polley & Pickett, 2003; Zink & Boyes, 2006) found that teachers had broad perspectives of OE that included the subject OE, outdoor recreation

experiences and the use of outdoor education methods to teach components of other learning areas. Despite the lack of clarity about what OE is and the place it has in the curriculum, it is reported as being widespread (Georgakis & Light 2010, Lugg & Martin 2001, Polley & Pickett, 2003). Whilst the focus of this review is the subject OE, outdoor recreation and outdoor education methodologies are included in the discussion.

A useful conceptualisation of OE is provided by the Australian Curriculum and Assessment Authority (ACARA, 2014) in the Health and Physical Education 'Overview':

> Outdoor education engages students in practical and active learning experiences in natural environments and settings typically beyond the school boundary. In these environments, students develop knowledge, understanding and skills to move safely and competently while valuing a positive relationship with and promoting the sustainable use of these environments. Elements of learning in outdoor education will draw on content from across the Australian Curriculum: Foundations to Year 10, including Health and Physical Education, Geography and Science. The primary content drawn from Health and Physical Education will be in the areas of outdoor recreation and the influence of connection to place and communities on health and wellbeing.

Australian Curriculum and Assessment Authority (ACARA) (2014) describes outdoor recreation as "the act of engaging in recreational activities", and that these are "typically associated with outdoor, natural or semi-natural settings" (p. 1). Outdoor Education Australia (2013) describes outdoor education methods, or "education outside the classroom (EOTC)" (p. 1) as a methodology to enhance other learning areas.

Review of the Literature on Outdoor Education in Australian Schools

Historically, OE has existed in Australia as a recognised subject of study in schools since at least the 1960's (Pickett & Polley, 2001), but using outdoor experiences and activities as part schooling has occurred in Australia since the 1890's (Georgakis & Light, 2010). It has been a senior secondary subject since in Victoria since 1982 (Martin, 2008) and South Australia since 1984 (Pickett & Polley, 2003). Reflecting similar developments in New Zealand, the literature reflects that OE has been part of both progressive and traditional western curriculum, compulsory and non-compulsory schooling (Lynch, 2009) with great variation from school to school.

In 1999 empirical studies undertaken in South Australia revealed similar results in most aspects related to the use of Outdoor Education (OE) in schools. Lugg and Martin (2001) and Polley and Pickett (2003) achieved good return rates (31% and 63% respectively). The South Australian results suggested that 79%of schools offered a camps program in years 8-12, 69% offered outdoor recreation activities as part of year 8-10 Health and Physical

Education (HPE), 32% offered stage 1 OE and 16% offered stage 2 OE, with many offering extracurricular programs such as Scouts, Outward Bound and the Duke of Edinburgh Award Scheme. Although there are differences, broadly similar results were found the Victorian empirical survey. Both surveys indicated that learning outcomes were focused primarily on personal development, with group development and environmental knowledge also given prominence. Physical fitness was low priority in the South Australian survey. The Victorian survey found a higher correlation between environmental focus of programs and teachers having completed specific studies in OE, as opposed to the majority of teachers in both states who had a HPE background.

The results from the Polley and Pickett (2003) South Australian survey appear to be challenged by the findings of Brown and Coulter (2002) who examined trends in HPE in schools when compared with an earlier study by Brown, Lewis, Murtagh, Thorpe and Collins (1999). Brown and Coulter (2002) suggest a rapid decline from 1999-2001 in outdoor and adventure activities (38%-67%), outdoor recreation (42% to 20%) and swimming and aquatics (67% to 57%). Although the possibility of a rapid decline in OE activities since 1999 is a possibility, the different sampling methods of the two surveys indicate the results should be treated with caution. A recent Organisation for Economic Co-operation and Development (OECD) article suggested that around 75% of schools offer OE to 15 year olds in secondary schools (Program for International Student Assessment (PISA), 2009) further cast doubt on the Brown and Coulter (2002) findings.

Despite the apparent widespread use of OE in schools, it is not a compulsory component of some schools it is not a compulsory component of any current state curriculum. Up until 2014 only one state HPE document (Tasmania) acknowledged the role and place of OE (Tasmanian Department of Education, N.D). Outdoor activities are listed as possible inclusions in SA, NT, ACT and Victoria (Australian Capital Territory Government Education and Training Directorate, 2008; Department of Education and Child Development (DECD), 2012; Department of Education and Children's Services (NT), (ND); Victorian Curriculum and Assessment Authority, 2012). The West Australian School Curriculum and Standards Authority (1998, 2012) described the use of "outdoor pursuits". However, the word "outdoor" does not appear in the Queensland or New South Wales curriculum documents (Queensland Studies Authority, 2010, 2012; Board of Studies NSW, 2006, 2007).

OE is not a learning area, but it is recognised as a component of a learning area (DECD 2004, DECD, 2012; ACARA, 2014). Recent draft documents of the Australian Curriculum (ACARA, 2014) do include the advice to include outdoor recreation, challenge and adventure activities, aquatics and navigation as part of the curriculum. It is striking is that there would appear to be a weak relationship between curriculum and the practice of OE by teachers in schools, as evidenced by the apparent widespread practice of OE despite the lack of supporting curriculum documents.

The view that there may be a weak relationship between curriculum documents and practices in schools is supported by a number of authors (Green, 1998; Green, 2000; McDonald, 2003; Penney, in Kirk, McDonald & O'Sullivan, 2006). The reasons for this are unclear, but theories are provided by a number of authors. Georgakis and Light (2010) suggest that the delivery of OE out of school ground and hours may be a factor. Brookes (2002) suggests that reasons are rooted in the failure of OE as a field to develop adequate unified concepts of OE. The weak relationship between curriculum documents and curriculum-in-practice may well be a function of broader social and political processes and issues. Penny (in Kirk et al, 2006) suggests that:

> "Curriculum construction and change emerges politically as well as a socially constructed process. It is a process conceptualized in terms of ongoing and often problematic balance between 'opportunities and constraints" (p.568).

What is not clear is how a field such as OE can continue to exist given the lack of attention to it within state curriculum documents, and the possibility of other pressing issues such as cost, time in the timetable, teacher and resources issues and a changing risk and litigation legal climate. Penney cites Underwood (1983, Penney, in Kirk et al., 2006, p.566) who suggests seven factors that determine curriculum-in-practice for OE. They are school climate, subject procedures, community resources, school resources, societal values, democratic atmosphere and children's abilities and interests. These factors might be explored further in relation to OE in Australian schools. Given that it would appear that there is a gap between curriculum documents and practice in schools the role of teachers in designing and delivering curriculum-in-practice might be explored further. Teachers face many constraints that affect possible delivery of OE programs, with the top 5 reasons cited by Polley and Pickett (2003) in 1999 being cost, availability of staff, time constraints, resource issues, timetable issues and competition with other curriculum areas, with similar outcomes from other studies (Lugg & Martin, 2001; Carcuro, 2011).

Boyes (2012) suggests OE practice is a result of contestations for social and symbolic capital, and challenges from internal and external fields and philosophies. Boyes (2012, p.34) identifies 3 key fields and ideologies as being most influential. These are the influence of neo-liberalism, the struggle between outdoors-as-adventure and outdoors as a source of learning and environmental philosophy development. The contestation between outdoors-as-adventure and outdoors-as-learning is found in the works of many socially critical authors (Hill, 2008; Hill, 2012; Lugg, 2004; Lynch, 2009; Payne & Wattchow, 2008; Wattchow & Brown, 2011). Martin (1998) provides a clear example of the contestation as he describes a tension between outdoor recreation and OE, citing the example of outdoor leaders trained using VET ideology in the place of teachers. According to Martin, such ideology is "strongly linked to social reproduction" (p.15), and might be compared to a more liberal and progressive ideology that prepares students for life more than work.

Conclusion

This literature review supports the need to explore further the nature and scope of OE in contemporary schooling in South Australia. There is a need to obtain current empirical data regarding who is teaching in schools, what is being taught, what rationale is used and differences between schools and sectors. Such empirical data will provide a firm foundation to explore broader local, social and political issues related to development of curriculum documents and curriculum-in-practice in schools. Given the apparent gap between curriculum documents and curriculum practice in schools particular questions are raised about the role of individual schools and teachers in the practice OE. The review of literature suggests a weak relationship exists between curriculum documents and the practice of OE by teachers in schools, as evidenced by the apparent widespread practice of OE despite the lack of supporting curriculum documents. However, while this continuity in delivery of OE exists, this review has led to the proposal of the important practical and philosophical question; how does (and can) OE can continue to exist given the lack of attention to it within state curriculum documents, especially when it is coupled with the possibility of other pressing issues such as cost, time in the timetable, teacher and resources issues and a changing risk and litigation legal climate? Further research is now planned to examine this conundrum.

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Outdoor education programs provide an opportunity to demonstrate healthy eating patterns

Dr Adrienne Forsyth & David Forsyth
La Trobe University and Halls Outdoor Education

Less than five percent of the Australian population consumes the recommended number of serves from each of the core food groups in Australia's Dietary Guidelines. While students may be taught dietary recommendations in school, and healthy canteen programs support students in making good dietary choices in the school environment, multi-day journey-based outdoor education programs provide an opportunity for students to be immersed in a program demonstrating whole-day patterns of healthy eating.

One Victorian outdoor education provider has begun a comprehensive evaluation of their food service in collaboration with a team of research dietitians. To date, they have conducted menu reviews, conducted staff surveys of food service perceptions and practices, and observed food service practices in planning and packing for programs.

Menu reviews found that despite perceptions of menus being healthy, some menus contained insufficient amounts of fruit, vegetables, milk and alternatives and meat and alternatives to meet the recommended daily serves of these food groups. Catering managers reported that fruit, vegetables, cereal and milk were being returned unused at the end of programs, conflicting with program staff reports of preparing meals according to recipes. Perhaps the focus for some program leaders needs to shift from adjusting recipes to please students' and teachers' preferences, to working with students to promote the inclusion of healthy foods.

In this setting, there is clearly a need for further research to determine students' energy and nutrient requirements and food preferences, as well as to determine whether food is being prepared in a way that provides a positive and engaging healthy eating experience for students. Education about the importance of healthy eating is needed for both students and program staff. Outdoor education providers should consider working with dietitians to develop menus and educational materials that will meet the needs of their clients.

Introduction

The 2007 Australian National Children's Nutrition and Physical Activity Survey (Commonwealth Scientific and Industrial Research Organisation, 2008) found that children adhered poorly to the Australian Dietary Guidelines (National Health and Medical Research Council, 2013). The guidelines for fruit intake were met by 61% of four to eight year olds and only one percent of 14-16 year olds. Only 22% of four to eight year olds and five per cent of 14-16 year olds met the guidelines for vegetable intake. These poor dietary habits are

contributing to an increased incidence of obesity, with 23% of Australian children surveyed now overweight or obese (CSIRO, 2008). This is of concern as excess body fat increases children's risk for developing a range of conditions over their lifetime including diabetes, cardiovascular disease, and musculoskeletal disorders.

In response to the poor dietary practices of Australian children, there have been several national and state-based programs developed to influence the food that children consume in school (see for example the 2010 National Healthy School Canteen Guidelines (Department of Health, 2014)). Healthy canteen programs have been implemented in schools across Australia. These programs often involve categorising foods based on their sugar, salt and fat content, and limiting the availability of less healthy options. The impact of these programs can be increased when accompanied by an appropriate and engaging school-based nutrition education program.

At most, school-based nutrition education and healthy canteen programs will directly impact on the food available to students for a few hours per day. Journey-based outdoor education programs provide an opportunity for experiential learning where students can be supported in adhering to a menu that is designed to meet their dietary requirements for up to several days. This may be enhanced with a variety of educational strategies ranging from providing support and encouragement to make healthy choices, to involving students in food preparation and menu planning. To facilitate a positive food and nutrition learning experience, most outdoor education providers will need support to develop healthy menus and train staff to provide and encourage healthy eating.

One Victorian outdoor education provider has begun a comprehensive evaluation of their food service in collaboration with a team of research dietitians. To date, they have conducted menu reviews, conducted staff surveys of food service perceptions and practices, and observed food service practices in planning and packing for programs. This paper outlines the research that has been undertaken to date, implications for practice, and plans for future research to support ongoing improvements in food provision and nutrition education.

Menu reviews

Methods

Detailed descriptions of journey-based outdoor education programs, corresponding menus, and participant demographic information was provided by an outdoor education provider for programs designed for groups of year nine students. Nutrition requirements were determined using Australia's Nutrient Reference Values (NHMRC,2006) and sports nutrition recommendations from the Australian Institute of Sport, and based on the program activities including activity duration, intensity and recovery time as well as anticipated basal metabolic requirements of participants based on the demographic data provided. Based on these

findings, general guidelines for the provision of food and beverages on journey-based outdoor education programs were developed (Forsyth, Coyle and Lococo, 2014).

The menus supplied (see example below) were entered into Foodworks version 7 (Xyris software) and analysed for total energy, macronutrient and selected micronutrient content per participant per day and evaluated against the anticipated nutrition requirements of participants. The menus were also analysed against the Australian Dietary Guidelines (NHMRC, 2013) and evaluated for food safety.

Sample existing menu items

Breakfast
Cereals, milk
Toast, spreads

Lunch
Wraps with salad, cheese and tuna or salami

Dinners
Stir fries with meat, vegetables and noodles or rice
Pasta with bolognaise or creamy sauce and vegetables

Desserts
Vanilla slice, apricot crumble, fruit cake

Snacks
Muesli bars, biscuits, chocolate, lollies, soup, fruit

Results

Mean energy provided (approximately 14 000 kJ) was below the recommendation for both boys and girls participating in each of the programs. For the most active program, the menu provided 6000 kJ less than predicted energy requirements of 20 000 kJ. The menu provided carbohydrate, protein and fat in proportions that approximated the Acceptable Macronutrient Distribution Range for both programs. The amount of carbohydrate provided was insufficient to meet the recommended levels based on the activities undertaken. To increase the energy content of the diet and maintain an appropriate macronutrient distribution, additional carbohydrate-rich foods such as pasta and rice could be added to the menu. These menu items are relatively inexpensive, light weight due to a low water content, and non-perishable.

One menu met the recommended number of serves of foods from the fruit and grains food groups, but not vegetables, meat and alternatives or milk and alternatives. Another menu provided the recommended number of serves of vegetables and grains, but not fruit, meat and alternatives or milk and alternatives. Increasing serves provided of each of these food groups would provide more energy, protein, carbohydrate, vitamins and minerals. Adjusting the menu to meet the requirements for all food groups could provide an additional 2850 kJ as well as improving nutrient intakes.

There were no identified problems with respect to food safety of the menus supplied.

Implications

The participating outdoor education provider is highly regarded for the quality of food provided on its journey-based programs. The catering manager reports that large amounts of food including vegetables is often returned from programs, indicating that students may be consuming even lower levels of energy and nutrients than what is made available. Three strategies may assist with improving overall energy and nutrient intake on programs. Ongoing menu reviews and relevant adjustments can ensure that the food made available will meet students' dietary requirements. Program staff should be encouraged to prepare all food according to menu instructions to make the intended menu fully available to students. Educational activities should also be planned for both program staff and students. Staff should be educated about the importance of good nutrition on programs, basic food and nutrition information, and how to promote healthy eating to students. Students should be taught about the Australian Dietary Guidelines and provided as many age-appropriate opportunities as possible to practice meeting the dietary guidelines.

Survey of staff food service perceptions and practices

Methods

All currently employed group leaders and permanent program staff of the participating outdoor education provider were invited to complete an anonymous online questionnaire. The questionnaire consisted of 22 open-ended questions about staff perceptions and practices with regards to providing food in their role as a group leader. Questions asked specifically, for example, about staff perceptions of the menu provided, whether food was prepared according to menu instructions, and whether modifications were made to suit student, staff or personal preferences. Responses were reviewed and analysed for themes.

Ethical approval for the survey was granted by the La Trobe University Faculty of Health Sciences Human Ethics Committee.

Results

The questionnaire was completed by only seven of 42 staff invited.

Responses were grouped into six key themes:

1. **The role of group leaders in food provision.** All group leaders reported that food service was an important part of their role.
2. **Modification of food.** Group leaders reported that they modify recipes only to cater for specific dietary requirements.
3. **Food supply and food waste.** Group leaders reported that there is more than enough food provided on programs.
4. **Food transport.** Group leaders felt overall that food was easy to transport when the load was shared across the group.
5. **Food preparation.** Group leaders reported that food was easy to prepare. There was a recommendation for more cooking equipment to be made available to allow more children to participate in meal preparation.
6. **Nutrition and food preferences.** Group leaders felt overall that the food was both enjoyable and nutritious. There were concerns about repetitiveness of meals for permanent staff.

Implications

The group leaders who participated in this survey reported favourably about the food and menu. The small sample size included in this study is likely to be representative of group leaders who are most interested in providing nutritious food for their students. Observation of staff in the field would provide a more representative view of food service practices.

Some inconsistencies have been noted between survey responses and actual practice. For example, group leaders report preparing meals according to instructions, and the catering manager reports food being returned, including ingredients that should have been used in the preparation of meals.

Concerns about repetitiveness for permanent staff impact on both the enjoyment of food and also the nutrients provided. It is particularly important for staff who are regularly away on program to have a nutritionally adequate menu.

Observation of food service practices

Methods

A grounded theory approach was used to develop an understanding of the processes and procedures involved in catering for a journey-based outdoor education program. Two final

year nutrition students observed the planning, packing and unpacking of food for a six-day journey based program. The catering manager provided informed consent to participate in the study. Observations were documented through note taking and photographs. Additional questions were asked of the catering manager to clarify her activities.

Ethical approval for the survey was granted by the La Trobe University Faculty of Health Sciences Human Ethics Committee.

Results

It was observed that the catering manager had detailed systems in place for ordering and packing food for journey-based programs. There were several changes that were made in the packing process that were done intuitively rather than by following plans or guidelines. Adjustments for special dietary requirements, group size, student age and sex, and program intensity were made at the time of packing. The adjustments were made by the catering manager based on her expertise and experience gained in both leading and providing food for journey-based programs for more than 20 years. For example, for a group of older boys with high activity requirements, additional serves of carbohydrate-rich food such as rice, pasta and breakfast cereal is packed. While the additions may appear arbitrary, the catering manager has developed an understanding of how much additional food is required based on staff and client feedback and observation of the food returned from previous programs.

Implications

The intuitive adjustments made in packing by the catering manager have been effective thus far. Future research could document and analyse the nutrient content of the additional food provided to determine whether this meets the anticipated additional needs for specific groups. Documentation of the modifications made for specific groups would help to continue to make adjustments in a systematic manner and allow the modifications to be made by other staff should the catering manager be unavailable.

Conclusions

The participating outdoor education provider has demonstrated a concern for providing high quality and nutritious meals on their journey-based programs. Working closely with dietitians to evaluate and improve their menus, as well as exploring issues related to program staff and administrative practices that impact on food service, helps to ensure that the planned nutritious meals are provided as intended. In this organisation, further research is needed to determine actual staff practice in regards to food provision. An evaluation of staff nutrition knowledge and messages provided to students would identify further areas for improvement, and inform nutrition training sessions for program staff. Where relevant, key nutrition-related

messages about the food provided could be incorporated into programs to reinforce school-based nutrition education.

In this setting, there is clearly a need for further research to determine students' energy and nutrient requirements and food preferences, as well as to determine whether food is being prepared in a way that provides a positive and engaging healthy eating experience for students. Education about the importance of healthy eating is needed for both students and program staff. Outdoor education providers should consider working with dietitians to develop menus and educational materials that will meet the needs of their clients.

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The historical butterfly effect of physical education, school sport and health education in Australian schools

Michelle Gorzanelli[1] & Dr Steve Georgakis[2]
[1]Australian College of Physical Education/University of Sydney PhD candidate
[2]University of Sydney

Since the National Curriculum was first proposed in 2003 there has been a renewed and vigorous interest in Australian education history. This is because a number of key learning areas (KLAs), particularly Mathematics and English, have used curriculum history to justify their subject area as essential in the Australian Curriculum. However this level of interest in other curriculum areas has not translated to Health and Physical Education (HPE). On the contrary, debates linked to the history of HPE have raised questions on the make-up and educative legitimacy of the subject area; perhaps because it is comprised of three different subject areas (physical education [PE], school sport and health). While there has been significant treatment on the history of PE, this has not been the case for health education and school sport. More evident is the lack of research documenting the history of these three subject areas in a combined analysis.

Keywords: National HPE curriculum, education history, health education, PE, school sport.

Introduction

This research traced the history of health education, PE and school sport in NSW government schools from the introduction of compulsory education in 1880 until the National Curriculum. A history of education research methodology was adopted to trace this phenomenon. This study is significant for a number of reasons. Firstly, the research shed light on a neglected part of education history. Secondly, the study traced the educative purpose of three traditionally separate subject areas inherently grouped into one KLA in the context of the history of Australian curriculum over time. Thirdly, this historical account captured the changing shape of HPE in NSW schools at an important time in Australian education history. Subsequently offering an official recording of the way in which HPE has been shaped and framed by directions pursued in education as a whole.

Schools have a history of being caught up in a 'sweeping set of social changes' (Giddens, 1982, p.4-5) and education has endured significant changes since the end of World War II, such as the introduction of secondary schooling and new subjects (Kirk, 2014). The introduction of the National HPE Curriculum is an example of such a complex transition and phenomenon. Curricularists Goodson (1983) and Young (1971) argued that curriculum change can be understood by focusing on the social history of school subjects as curriculum production and reproduction is situated historically. In particular, this research focused on the educative purpose of HPE as a subject in the curriculum and on the knowledge that the

subject embodies (Kirk, 2014). By analysing the factors influencing the history of these three 'least compatible bundles of curriculum content' of PE, school sport and health education, this paper offers an understanding of the changing educative purpose of health education, PE and school sport.

Since this historical study was interested in the factors and forces that have shaped and guided curriculum construction and change, the work of Kirk (2014) on defining the parameters of curriculum were adopted. According to Kirk (2014), there are three facets of curriculum: knowledge, interaction and context. Firstly, the specific knowledge of the HPE curriculum provides a way of thinking about, conceptualising and interrogating the way curriculum is used, disseminated, created and evaluated to suggest the educative purpose of HPE (Schiro, 2008). Secondly, social institutions in Australia such as schools use values and conceptions of the world to reinforce the current order. It is the socialisation process of schooling and interactions with the curriculum that shape cognitive and affective interpretations of the intent and endeavours of the curriculum (Lye, 1997). Finally, the longstanding socio-cultural perspective implemented in HPE provides a lens through which to examine the context of this subject area by offering insights in the shared ways of thinking and operating in HPE (Cliff, 2007). By framing curriculum knowledge, interactions and the contexts in which the HPE curriculum has existed, the study analysed and dispelled dominant myths portrayed throughout wider society on the ill-legitimacy of this subject area; resulting in an authentic history of PE, school sport and health education.

Methodology

Educational history is a prominent topic for scholarship with Cohen, Manion and Morrison (2011) stating, 'such research has the capacity to illuminate the past, patterns of continuity and change over time, and the origins of current structures and relationships' (p.254). Furthermore, recording and interpreting 'what has gone before' can enhance the understanding of particular public activities, including education (Depaepe, 2001, p.634). Historical studies are also of interest and value for the current climate as they place recent and contemporary events in historical perspective and locate such events within a variety of contexts (Jenkins, 1991). Consequently, a history methodology was implemented to effectively examine the varying emphases of PE, school sport and health education overtime and to systematically link these historical accounts with patterns of change/continuity within society. In doing so, this study inherently depicted the status, dynamic identity, nature and evolution of these three traditionally separate subject areas in the history of education in Australia. Since the endemic contentions on the nature and content of school curricula have been well recognised in general education literature (Goodson, 1983; 1984) as well as in (health and) PE research (Kirk, 1996, 1998; Tinning, 1996, 2013), the systematic review of important documents were pivotal to this study as they revealed the specific knowledge and chains of events that have shaped HPE history in Australia. Critically engaging with policies,

curriculum and contexts at both national and state levels also served as reference points in the development of a history of Australian HPE curriculum overtime (Penney, 2010).

History of PE

The Commonwealth Department of Defence required all State Departments of Education to implement the Junior Cadet Training scheme from 1911-1931 as part of the school curriculum (Kirk & Twigg, 1993). The only PE-like activities reported by Department of Public Instruction records (NSW DET) and various State Education *Gazettes* from 1858 through to 1951 were repetitions of forming lines, exercises of military drills and Swedish gymnastics striving to regulate fine young bodies to support the nation's war defence (Kirk & Twigg, 1995). Initial acknowledgements of the relationship between PE and health had become apparent as 'the introduction of military drill … raise(s) the character of the students … (and) show(s) a more … healthy discipline' (NSW Council of Education, 1871, p.230). School medical inspections and anthropometry data collection also monitored the health of young Australians at this time.

The ideology of team sports as 'PE' emerged as 'physical training' in schools had become under attack in the 1920s. It was perceived that PE does not only include 'formal physical exercises, but swimming, organised games, rhythmic exercises, folk dancing, practical hygiene, and remedial exercises based on the medical assessment of each child (Victorian Parliamentary Papers, 1928-9, p. 8). The fitness movement of the late 1930s also led to the *National Fitness Act* in 1941 (Ramsay & Johnson, 1936), which resulted in a transition in PE from militaristic exercises to the positioning of PE as the foundation to the skills children need to participate in sport (Gray, 1985). Formal teacher training courses of PE (Ramsay & Johnson, 1936) were thus established, specialising in the principles of games, swimming, dancing, fencing along with general science, anatomy, hygiene and body mechanics. Consequently, the end of WWII marked the formal establishment of 'PE' reflective of current practices in PE (Kirk & Twigg, 1995), encompassing a range of activities previously organised separately, such as swimming, competitive games and sports, and aspects of health and hygiene.

The eugenic and political views of PE in Australia between 1900 and 1950 questioned the purpose of this subject area (Rodwell, 1999). It was perceived that children should take responsibility for their own health with the nation's prosperity in mind (Briton, 1937) as 'an ill-trained body (was) as severe as a criticism of the best citizen as illiteracy' (Sutton, 1941, p.xv). Consequently, PE was to provide young people with the knowledge and skills to become healthy and productive citizens through the promotion of lifelong physical activity (Georgakis & Wilson, 2014). However, 'the separation of education into (the) mental and physical is convincing evidence that our conception of (physical) education is still incomplete' (Sutton, 1941, p.83) as the mind/body or Cartesian dualism, which sees the body

as inferior to the mind continues to dominate Western thinking (Shilling, 2004). Even now there is still a 'theory' and 'prac' delineation of lessons in schools supporting the mind-body separation resulting in certain knowledges being compartmentalised as important 'conceptual' subjects (e.g. maths) and subjects using the body (e.g. PE) regarded as 'less important' (Tinning, McCuaig & Hunter, 2006, p.125).

Amongst such apprehensions are critiques extolling the value of PE to the health of Australia's youth and well-being of the nation (Dodd, 2002). During certain times in history, there has been greater emphasis on PE in schools, such as the period coinciding with the golden age of Australians in Olympic games from 1952 to 1972 (Gordon, 1994). Post WWII, there was growth in the stature of PE and sports facilities in schools and the proliferation of physical education teacher education (PETE) training providers Australia-wide (Georgakis, 2010). Amid these milestones, the status of PE in Australia has been a cause of concern and a discipline in 'crisis' (Brooker & McDonald, 1995). Notably, the Senate Inquiry into Physical and Sport Education indicated that 'Commonwealth, State and Territory governments are obligated to … co-operate to ensure that PE and sport education is given a higher profile in the school curricula' (Commonwealth of Australia, 1992, p.3). Dodd (2002) reported ten years later that ample evidence still indicates that the crisis has not been resolved.

The history of school sport

Research highlighted the limited references to issues impacting on the rise of school sport (Wright, 2011) and debates questioning its role in school. However, the literature that does exist records the history of sport and games in elite private schools. For instance, the rise of the educational ideology of athleticism has been of considerable interest to the Greater Public Schools system by 'consolidating the value system in which games playing was embedded' (Kirk & Twigg, 1995, p.3). Thus, school sport became a symbol of social elitism that distanced government schools from private schools, a trend that is still evident today. Evidence suggested that school sport was central to the construction of a male's masculinity in GPS schools (Sherington, 1983; Stewart, 1992). More recently, the need for sport was widely accepted as playing a role in the promotion of regular physical activity in schools (Pate et al., 2006) to combat health-damaging lifestyles (Harrison-Davidson, 1979). Sport in education also has the capacity to improve educational outcomes by contributing to the physical, academic, social and emotional development of the child, acting as a vehicle for a number of moral learnings and rationalising sport as an important part of the Australian culture (Saunders & Jobling, 1983).

There have been historical attempts to dissociate PE and sport; however the ASC (1994) reiterate that sport and PE are complementary in much literature as PE is the part of education, which encompasses a range of physical activities through the medium of sport. Sport literacy is the language used to articulate the educative purpose of sport teaching and

learning in PE as it provides a theoretical grounding for sport education consistent with the conceptualisation of knowledge and understanding encountered by teachers in other subject areas. Thus promoting educationally valid and socially equitable sport teaching in PE (Pill, 2010). Sport as a moral practice is also well placed amongst PE as its critical pedagogy is embedded within the Sport Education model (Kirk, 2006) facilitated in schools.

Controversially, the allocated time for the 'new' HPE curriculum does not include provisions for extra-curricular school sport programs even though it aims to develop 'expertise and physical fitness in movement skills and activities as a prelude for lifelong physical activity participation and to appreciate the significance of physical activity and sport in Australian society (ACARA, 2012, p.2)'. The general consensus is that this new curriculum does not correspond with historical approaches to teaching in this subject area as traditionally HPE teachers spent most of their time on topics associated with skill development for play and sport, physical fitness, movement skills and physical recreation (Tinning et al., 2006). There is no academic literature justifying the exclusion of school sport in the curriculum, yet recent trends indicated that only 60.2% of children aged 5-14 years in Australia participated in organised sport outside of school hours (Australian Bureau of Statistics, 2012).

History of health education

The rise of health and sex education in Australia has also experienced a history of neglect (Kirk & Gray, 1990). Literature on school health education has been sporadic and health education has been implemented as 'crisis-management' amidst a wider framework for health-promoting environments at times of need (St Leger, 1997). Initially when compulsory education was introduced in Australia during the 1880s, health education focused on 'personal hygiene' prior to knowledge on emerging health issues (Dukes, 1885). The Board of Education (1913) stated that health education 'deals with matters that have a real relationship to his (sic) life and society…(and) is capable of correlation to nature study, physical culture, first aid, domestic acts and morals' (p.102).

From the 1940s onwards the nation's well-being was of optimal importance to civilian and service life as the 1943-44 peak in venereal disease (nearly triple the pre-war incidence) was the 'enemy within our gates' (Bamford, 1942, p.26). In response to the outbreak of various diseases and public alarm on health issues, a range of agencies targeted school health education as a key site for intervention and prevention of illness (Kirk & Gray, 1990), it was perceived that up to date health education would eradicate the dangers of venereal disease and protect the White population by promoting good breeding habits (Logan, 1991). Health education only emerged as a concrete subject in the school curriculum during the post-World War II period as a social response to these issues occurring in the wider community (Kirk & Gray, 1990). This is particularly evidenced during the latter half of the twentieth century

whereby new advances in health knowledge resulted in various health topics finding their way into school curricula. For instance, schools addressed diverse topics including oral health, nutrition, drugs, traffic safety, physical activity, sexuality, HIV/AIDS, mental health, drug education, food and nutrition, living skills, personal development, moral education, relationships, fitness, recreation and work education (Macdonald & Glover, 1997).

Within each state and territory in Australia, health education assumed different names such as growth and development and home economics and was thus influenced by various social issues that determined each curriculum. Health education was often amalgamated with PE until the late 1960s yet taught separately by science teachers or outside speakers, such as a General Practitioner, as it was perceived that physical educators were not equipped to deal with the sensitive nature of the material (Kirk & Twigg, 1995). Health authorities were forced to seek ways of 'managing' these crises and it was established that health education programs and school health promotion initiatives could work collaboratively to achieve good health and favourable educational outcomes (Brellochs, 1995). Studies have specifically highlighted the influence of the Ottawa Charter for Health Promotion (WHO, 1986) and the HPS international movement and strategic framework has reshaped school health education across the world (St Leger, 2004). Notably, the most prominent issue addressed throughout heath education history was sex education. The introduction of sex education during the fifty years prior to the outbreak of WWII was prompted by the perceived threat of the sexually transmitted infection (STI), HIV/AIDS (Swain et al., 2004). Educational campaigns against AIDS conveyed a 'new frankness to sex education in Australia, the argument being that only an informed population could protect itself from disease' (p.33).

Conclusion

There continues to be research on the causes (values, beliefs and understandings) and symptoms (such as the lack of curriculum time, specialist teachers and funding) of the decline of HPE and the possible ways ahead for the HPE. Evidently, the recording on the history of each of the subject areas of PE, school sport and health education overlaps with one another, as clear distinctions between the subject areas have not been established (Kirk & Twigg, 1995). However it was the 1992 Senate inquiry into such concerns that resulted in the mandating 1994 *Statement* and *Profiles* on health and PE in Australian schools, which acknowledged the need to integrate the traditionally separate subject areas of health education, PE, home economics, outdoor education and personal development (Curriculum Corporation 1994a, 1994b). While it is clear that there has been substantial scholarship on the history of PE in Australia, such as literature on the military drills and team sport ideology characterising the early history of PE, there are still some gaps in the PE literature. The impending absence of school sport in the curriculum may potentially have an affect on physical activity levels of students and health promoting behaviours. School sport sense is linked to the concept of the 'healthy citizen', which justifies the importance of health

education in the school curriculum. Amongst these finding, the history and future of HPE is jeopardised by the devaluations placed on this subject area due to the already crowded curriculum and the controversial nature of the subject area (Ridge et al., 2002).

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Flipping Research: A model for Future-Focused Research making learning visible in Health and Physical Education

Margot Bowes[1], Anne McKay[2] & Kylie Thompson[2]
[1] University of Auckland, [2]Unitec Institute of Technology

This paper reports on a future-focused model for practitioner-led inquiry (PLI) in secondary Health and Physical Education (HPE). As a future-focused model this paper draws the notion of the Flipped Classroom (Tucker, 2012), where teacher's front end the development of their inquiry questions with the support of tertiary academics who review the literature and suggest appropriate methodology to support the teachers' research, while simultaneously addressing the tension for teacher educators to conduct research as a significant output of academic work. The purpose of the study is to make student learning more visible to students, their families (whānau) and to make this learning as explicit to both of these groups as it was to their teachers. The paper describes concerns raised by teachers that students found it difficult to identify their learning in Health and Physical Education (HPE) and consequently the students could not recognise next steps for future learning. This concern became the focus of the inquiry approach in two large metropolitan city schools; a traditional subject specific HPE delivery school and a school with a future-focused integrated subject curriculum. The study used a collaborative action model where both students and their whānau were asked what students actually learn in HPE, how they learn and how they know they are learning? As co-researchers with teachers, the authors believe that if students and their whānau are able to recognise what they are learning and how they are learning it becomes a more realistic goal for them to jointly consider, where are the next steps in their learning are. This puts students more on the path to being self-regulating and lifelong learners. As the co- researchers we argue that by making the metacognitive process of learning visible in HPE contexts, beyond teachers to students and their whānau, the Vision of the New Zealand Curriculum (NZC) (Ministry of Education, (MOE), 2007) of Twenty First Century (21C) learners as highly confident, connected, actively involved, lifelong learners, may be better actualised.

Key Words: visible learning, practitioner-led inquiry, metacognition, health and physical education (HPE), priority learners, integrated curriculum, students, whānau

Introduction

Educational success is a priority for the New Zealand government and our society. The first of the national educational goals seeks, "the highest standards of achievement, through programmes which enable all students to realise their full potential as individuals, and to develop the values needed to become full members of New Zealand's society" (Ministry of Education, (MOE), 2015, para. 3).

HPE is recognised as one of the 8 learning areas of the New Zealand curriculum (MOE, 2007) that can contribute to this, yet historically the perception of Physical Education (PE) as a 'play' subject is widespread in New Zealand (Hardman & Marshall, 2000, Sallis, McKenzie, Kolody & Curtis,

1996). Students, parents and whānau have not necessarily understood the richness or the potential of learning that can be developed through this subject. As an example of practitioner-led innovation this project has the potential to ensure that the HPE learning area is making a valuable contribution to the NZC Vision, by making what students are learning, why they are learning it and how they know that they are learning explicit and visible to students and their whānau. This takes the focus off teaching placing it explicitly onto learning. This project also had the potential to compare and contrast how two quite different delivery models for Year 9 and 10 physical education could make learning for all, more visible.

Background

Two secondary schools are participating in this project. Prior to the study, Secondary School 1 inquired into the process of collecting ongoing evidence of student learning in HPE. As part of this inquiry process, student voice highlighted that many students in physical education found it difficult to identify their learning and therefore could not recognise next steps for future learning. Essentially, the inquiry suggested that students were not recognising or being able to articulate what they learned from a physical education unit of work despite the use of many strategies focusing on such learning, including sharing learning intentions and developing success criteria. Furthermore, the initial inquiry suggested that students struggled with the relationship between learning and achievement, often only identifying that learning had taken place once they had received a summative grade.

By contrast, Secondary School 2 has a future focused integrated subject curriculum. This school that opened in 2014 has a focus on learning projects that, "draw on a wide range of curriculum areas applied to an authentic situation, with a focus on innovation and entrepreneurship" (School Prospectus, 2015). Their integrated curriculum model includes three main parts. Firstly, specialised learning modules that were collaboratively taught, cross-curricular, and integrated modules. Secondly, 'big projects' that are integrated projects that involve taking action in the community. Thirdly, 'Hubs' that have a dispositional curriculum, one that Hart (2013) describes as "the H School Habit" (para. 2) and also the systems and structures for truly personalising learning at this school. Their teacher-led inquiry asked if the integrated curriculum and collaborative teaching modules facilitated a focus on metacognitive learning threshold concepts such as critical thinking, learning how to learn and visible learning. Due to the integrated nature of the curriculum delivery at this school, making learning visible was identified as a priority focus. To achieve this, it became pertinent to investigate the difference between intended and actual outcomes; specifically, with a focus on where HPE was located in this integrated approach and whether or not HPE learning was visible to the learners.

Based on their initial inquiries, teacher's from both schools and thus representing both curriculum models are included in a professional learning community, set up to include teachers, teacher educators, students and whānau. Collectively, the research aims to find out if students and their whānau actually recognise that they *are* learning in, through and about movement (Arnold, 1979), if they know *what* they are learning and, if they know, *how* they are learning in through and

about movement? Researching these questions could better seek to understand what sense students and their whānau are making of their learning in HPE contexts.

This study is innovative in three ways. Firstly it is focused on HPE, a subject area that in New Zealand is rarely included in school discussions on students learning (Hardman & Marshall, 2000; Stroot, Collier, O'Sullivan & England, 1994). Secondly, the study seeks to compare and contrast the concept of making the learning visible in two very different HPE situations (one in a more traditionally based physical education class and one in an integrated and project based learning, module system). Thirdly, this research project aims to include students, teachers and whānau working together to develop more authentic ways of capturing the metacognitive processes of learning. By making the learning more visible in HPE, beyond teachers to students and their whanau, we aim to make available those processes to other learning situations and to other aspects of the students' lives more effectively.

While the project is focused explicitly on student learning and whānau understanding of that learning, the teachers play a critical part by developing teaching strategies and ways of gathering evidence of learning so that the students and their whānau are clearer on what they have actually learned. In the experience of one of the teachers in this project, when whānau inquired into their children's learning by asking, "What did you learn today?" the reply was too frequently was reported as, "Nothing!". By involving whānau in the learning journey we aim to uncover if this cycle can be disrupted and changed. The research also aims to reveal if an initial inquiry into whether or not integrating HPE learning with other learning areas helps to make learning more visible for students and more transferrable than in the traditional curriculum construction that separates knowledge into subject disciplines and thus siloes HPE from the other learning. Finally, by 'flipping' the research model, that is to a teacher-led inquiry supported by academics providing literature reviews, methods and data collection and analysis, this research may better meet the inquiry cycle and research outputs of both teachers and tertiary educators, and may serve to promote the uptake of further post graduate study by the practicing teachers involved in the study.

Visible Learning

The teachers in the two schools have begun inquiring how visible learning is that is happening in their HPE classes. They are using pedagogies with a focus on teacher- learner narrative, ongoing dialogue, verbal debrief, peer teaching and self and peer assessment to see if students know about and are able to recognise their learning and next steps? As Hattie (2009) suggests, "what teachers do matters' (p.22) and suggests that deliberate intervention is needed in order to develop student learning. He suggests that visible learning is not just about student learning being more visible to teachers, but that making teaching visible to students is just as important. Zimmerman and Schunk (2004) suggested that students' developing the skills to become their own 'teachers' is an important attribute in the process of becoming self-regulating, a disposition needed in order to becoming a lifelong learner. Rather than teaching becoming something that is done to students, Hattie (2012) highlights the importance of students and teachers working together on deliberate practice; or as he states, "teachers seeing learning through the eyes of students and students seeing teaching as the key

to their ongoing learning" (p.18). This statement captures the importance of the focus on a shared responsibility, one in which both student and teacher work to develop deeper learning; however, it is the teacher who needs to set the direction for learning and in doing so will know where each and every student is in relation to that learning in order to support students to their next steps in learning. Visible teaching is therefore evident when a student knows what to do and how to do it, and when teachers and students know learning has occurred. This is a central aspect in this research project that is, students knowing that learning has occurred and that they know how it occurred.

Practitioner-Led Inquiry

Cochran-Smith and Lytle (2009) suggest that Practitioner-Led Inquiry (PLI) is a well-recognised and well developed method for researching teaching and learning, but note that it is highly 'complex and dynamic' (p. 37). The authors of this paper believe that applying the notion of 'flipped' research to PLI, through teacher educators supporting and scaffolding PLI, can reduce this complexity and increase the vibrancy of this type of research. PLI as an international movement, rather than as a teaching method, is at the forefront of teacher professional learning and inquiry. Cochran-Smith & Lytle (2009) suggest the PLI has its purposes in educational and social change and can be considered as an 'umbrella' term for action research, the Scholarship of Teaching and Learning (SoTL), Teacher Research, Self-Study and using Practice as a Site for Research. Amongst a number of shared features in these methods is a focus on the practitioner in the research role and the professional context as the research site. Cochran-Smith and Lytle (2009) argue that this is quite different from traditional research where the teacher, school and students are often the object of outsider's inquiry. Flipping the inquiry from researcher to teacher-led inquiry, while capturing the student voice and the voice of whānau as educational stakeholders, is a possibly powerful and unique feature of this type of research. In this study, the practitioners are best described as, 'knowers, learners and researchers' (Cochran-Smith & Lytle, 2009, p.43) engaged in inquiry beyond the normal requirements of teaching. In this form of inquiry, the practitioners theorise that while the findings may be transferable in some form to a wider audience, the emphasis of PLI is on local action and social change instead of knowledge generation in the public domain.

PLI is subject to a number of critiques of intention and validity (Cochran-Smith & Lytle, 2009). The critique surrounding intention draws on purpose, while validity relates to the quality of evidence for the ontological and epistemological underpinnings of interpretative inquiry. Most relevant to teacher-led inquiry is an ethical critique around the inclusion of student voice and political motive. Positional power created through the student- teacher relationship and/ or the potential use of data for alternative motives, such as increased resourcing and promotion, need to be considered and addressed by the research design and ethics application. Shared values and vision, collective responsibility for student learning based on achievement data and reflective inquiry are identified as critical aspects of PLI (Cochran-Smith & Lytle, 2009).

PLI frequently involves the use of Educational and Collaborative Action Research. The following table provides an overviews of recent PLI studies that have used this approach in HPE.

Casey, A. Dyson, B. & Campbell, A. (2009)	This study focuses on the process a practicing teacher undertook in order to shift from a teacher led pedagogical approach in physical education to a more student centred pedagogy using co-operative learning. The use of Action Research (AR) allowed the practitioner to 'build a complete picture' by combining practice and research to "find solutions to real problems" (p. 408).
Casey, A. and Dyson, B. (2009)	This study used AR to "generate knowledge about teaching and learning" (p. 175). This involved the teacher letting go to give more control to the students as they used co-operative learning and Teaching Games for Understanding (TGfU) in a unit of work. AR encouraged the practicing teacher to implement "academic discourse" (p. 175) into practice with the support of a critical friend or debriefer.
Petrie, K., Burrows, L., & Cosgriff, M. (2014).	This study describes a project whereby teacher practitioners and university researchers, with a common interest in the young people and HPE, worked together to collectively 're-imagine' what HPE practice might look like in primary schools. The AR method allowed them to explore possibility and practice in a way that led to collaborative problem posing and problem solving combined with meaningful dialogue on the assumption that inquiry was an essential, rather than as a disparate part of practice.

Table 1:1 Contemporary PLI Action Research (AR) studies in HPE.

These studies highlight the potential the PLI that has to share knowledge, pose problems, seek solutions and to provide a critical eye if and when necessary in order to support teacher practice. In all of the studies the practitioners had insider knowledge, knowledge of the students, knowledge of the context, the environment and of the whānau. This knowledge allows the practitioner to be potentially more responsive to the learning environment as they seek to understand learning that is occurring. Outsiders have the potential to be the neutral face, one that is able to seek information from students in a way that students do not feel concerned about saying the 'wrong thing' to their teacher.

Methods

Participants and Setting

The PLI research group has formed a professional learning community consisting of curriculum leaders in HPE from two very different types of secondary schools and three lecturers from two different types of New Zealand tertiary institutions. Both of the curriculum leaders and all of and university lecturers are a members of the national and regional branch of the subject association, Physical Education New Zealand (PENZ). Secondary School 1 is a co-educational state secondary school with a role of 1400 students and a decile rating of 5[i].

This school has a Māori student cohort of 20% and Pasifika population of 13%. Māori and Pasifika are identified by the Ministry of Education in New Zealand as priority learners. Secondary School 2 is a new state decile 10 school established in a new community in West Auckland. Both the primary feeder school and the secondary school are governed by a single Board of Trustees as a public -private partnership. The secondary school currently has Year 9-10 students enrolled and will grow to include years 11-13 by 2018. Currently the school has a role of 250. Secondary School 2 has a Māori cohort of 8-10% and Pasifika population of 6-8%. Once ethics approval has been attained, a small group of Years 9-10 students and their whānau from both schools will be invited to join the professional learning community to conduct the research.

Research Design for Visible Learning Pedagogical Inquiry

We argue that practicing teachers are best positioned to identify what it is that they want to know about their students and their practice and to instigate inquiry into teaching and learning. This clearly positions the study philosophically as PLI with the preference for a qualitative research design. This naturalistic approach is frequently employed in PLI in school settings as it has the potential to address both the ontological (what actually exists in these classrooms and schools?) and epistemological (methodology to answer the questions posed) tenants of this type of inquiry (Snape & Spencer, 2003).

To address the tenants of what students learn, how they learn and how they know they are learning (increased visibility of learning), both secondary schools will involve all their faculty members in this research: Secondary School 1 as part of a faculty wide inquiry and Secondary School 2 with their three teachers who have a focus on HPE, within the integrated learning modules. Due to the nature of collaborative teaching, there are additional teachers involved with the work at Secondary School 2. For the first half of the year HPE is integrated into modules including Science, Mathematics and English. The whole school is also involved in pedagogy attempting to make learning visible, where data may be drawn from multiple areas of the school curriculum. HPE and curriculum teacher educators from the two universities are providing expertise and advice around research methodology including reviewing the literature, collaborating on the research design and seeking ethics approval. They will co-research with teachers, students and whānau. There is also collaboration with PENZ Auckland Branch, to plan and to profile the potential of this teacher-led innovation for inquiry, learning and research-led practice for improving student

outcomes in Year 9-10 HPE.

Data Gathering

Both schools will engage with their communities on multiple levels during 2015. This will include, students, whānau, and the wider school communities. Engagement will be through a variety of qualitative research methods with a focus on consultation and dialogue to gain multiple perspectives on the place, purpose and potential for learning making learning visible in the learning area of HPE. The research methods being used include regular professional learning meetings with the community of practice, field journals including key incident recording, teacher/ faculty unit evaluation, student and whānau focus groups and questionnaires. These will form individual professional inquiries. The research group has applied for teacher release funding through the Teacher-Led Inquiry Fund of the Ministry of Education to further support this project.

Data Analysis

The data will be read using inductive analysis and the Constant Comparison Method (Lincoln & Guba, 1985). The success of the research will be measured by the degree to which students are able to articulate their learning in HPE with each other, with their teachers and with their whānau. The base-line data of student questionnaires, administered by the school deputy leader of one school, suggests that students "didn't learn anything" in PE. The success of the project will also be measured by if students and their whānau are able to articulate the process of learning in HPE, why they are learning it and how they know that they are learning explicitly and visibly. Flipping research will be reflected upon by the teachers and teacher educators to ascertain if there is greater support for the teachers to enable their individual professional inquiries through academic research support, and whether or not the teacher educators are able to increase their research and publication outputs.

Conclusion

In this paper we suggested that while both tertiary educators and practicing teachers have teacher-led inquiry, student learning and achievement foremost in their teaching practice, tertiary educators as researchers, often instigate approaches to practicing teachers to participate in educational studies. As a result, research can often be viewed by practicing teachers as something that is 'done to them'. We argue that practicing teachers are best positioned to identify what it is that they want to know about their students and their practice and instigate inquiry into teaching and learning and that this is better achieved when teacher educators guide rather than lead this type of inquiry. 'Flipping' the traditional model of research by moving tertiary educators from instigators to co-researchers with teachers, demonstrates how teachers and academics can build effective collaborative action research partnerships where teachers provide the source of the inquiry and academics provide the research framework and methodology. We argue that flipping research in this way serves to foster ongoing professional development and learning for teachers and teacher educators that is more authentic, more meaningful and more achievable. Finally, this study adds knowledge to the field of qualitative research design for practitioner-led inquiry in HPE that has the potential to make real change in

HPE classroom learning environments by making more visible what students learn, how they learn and how they know they are learning in HPE contexts.

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[i] A school's decile rating indicates the extent to which it draws its students from low socio-economic communities. Decile 1 schools are the 10 percent of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10 percent of schools with the lowest proportion of these students. The lower a school's decile rating, the more decile-based funding it gets. (Ministry of Education, 2015).

Health and Physical Education – A Strengths Based Approach

Scott Clark
Education Queensland

Strength based education has two fundamental principles; the strengths of the educator and the strengths of the student (Anderson, 2004). A strength based model for education allows for both parties strengths to be recognised and developed in highly engaging learning environments. Primary educative goals are to transform talents into strengths through a comprehensive learning process. Introducing a strengths based model into the HPE curriculum allows students to access goals that are centred around personal strengths and developing capacities that students need to promote, enhance and enrich their own and other's health.

The process of a Physical Education curriculum accessing a strengths based approach involves educators intentionally and systematically discovering their own talents and developing and applying their strengths to improve teaching methods. Additionally it allows for the improvement of design and implementation of the curriculum to help students discover their own talents and strengths, all while learning substantive knowledge, academic skills, and thinking and problem solving skills (Anderson, 2004).

This educational model embodies a student centred form, with the primary goal of transforming students into confident, efficacious lifelong learners whose work is informed with a sense of purpose (Lopez and Louis, 2009). It explores ways to empower individuals to flourish rather than simply survive. The Australian HPE Curriculum has moved past a deficit based approach solely focused on potential health risks, to a model that requires students to make decisions based on the strength of the outcome for the community, by being able to recognise the strengths of the community (ACARA, Shape - HPE p.8, 2012).

Introduction

With a fast paced moving society Health and Physical Education (HPE) needs to change perspective with regards to the way curriculum is implemented. The move from a deficit based model to a strengths based model represents a change in thought not only for students but teachers as well. The curriculum change is taking a salutogenic approach to its implementation, focusing on support rather than factors that cause disease. This strengths based approach will allow for greater student understanding and achievement.

An understanding of how the new curriculum allows for greater depth and breadth of knowledge and its real world application for students is the core challenge for teachers. Pedagogy that has a salutogenic focus acknowledges a positive approach to educational outcomes and goals with students at the crux of its beliefs. It changes the focus of questioning

from a negative –closed approach to a more positive – open approach that allows both students and teacher to explore more profoundly the focus areas. Exploration and generation of ideas that come from the Alpha brain rather than the Beta brain, allows for fuller engagement with stimulus topics (Basar, et.al., p.6, 1997). However, first we must understand the meaning behind a strengths based approach.

Strengths based education highlights for students and teachers alike what their strengths are. This approach to pedagogy allows for both parties strengths to be recognised and developed in highly engaging learning environments (Anderson 2004). The ability to capitalise on one's best is likely to lead to greater success than what would be possible by making a comparable investment of effort into overcoming personal weakness or deficiencies (Lopez and Louis, 2009). The main point of this educational approach is to focus on strengths; however, not to the point of ignoring fatal weaknesses within our students (Clabaugh, 2005).

This approach is acknowledging the fact that most students come to this learning area feeling positive about their health (Shape - HPE p.3, 2012). By acknowledging this fact; students are directly engaged in the learning process, rather than disengaging by 'alienating young people, and frequently laying blame on them for their failure to meet expectations of self-management' (Shape - HPE p.3, 2012). The main aim within this approach for HPE is that this curriculum supports student development of knowledge, understanding and skills to enhance and promote their own and other's health and wellbeing (ACARA, Shape - HPE p.25, 2012).

The biggest stumbling block that will be encountered with a strength approach is, how will the student's strengths fit into school tasks. Taking into account the fact that there are many different forms of strengths that aren't recognised in the regular classroom setting, the implementation of a school wide strength based approach seems far-fetched (Clabaugh, 2005). Having a curriculum such as HPE that innately addresses Gardner's Multiple Intelligences will allow for ease of implementation (Northern Illinios University, 2014). Providing teachers access student strengths both in and out of the classroom, we as professionals can cater for diverse ranges of students and their even more diverse ranges of strengths.

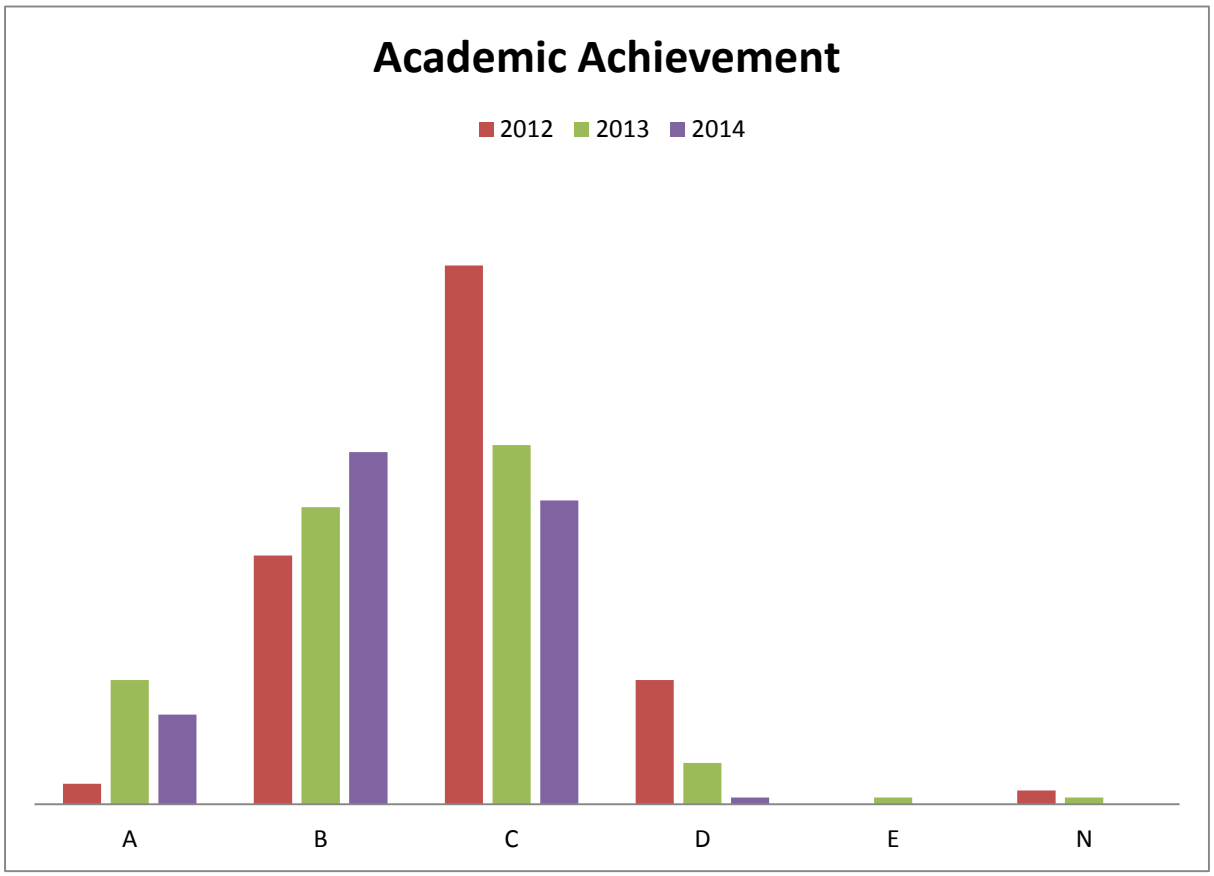
This educative process is based around five modern day educational principles:

1. The measurement of strengths, achievements and determinants of positive outcomes.
2. Individualisation, which requires a tailoring of the teacher's method to the students' needs and interests.
3. Networking with friends, family and professionals who affirm strengths.
4. Deliberate application of strengths in and out of the classroom.
5. Intentional development of strengths through novel experience or focused practice across a period such as a semester, academic year or an internship.

(adapted from Lopez and Louis, 2009).

As a key learning area HPE addresses each of these five principles in many ways that other KLA's cannot. Having both a practical and theoretical component to a subject gives students broader access to their own personal strengths. Subjects such as Manual Arts, Home Economics, The Arts etc. all allow students to access different strengths in different ways. This is not to say that other curriculum areas do not allow students to access personal strengths, however there is an ease of application in these more practical areas as they more ably address multiple areas of Gardner's Multiple Intelligences (Northern Illinios University, 2014).

Educative gains shown through a strengths based approach are well documented. In the following graph educational outcomes are shown across a spectrum from 2010-2014. It is to be noted that in 2013 a trial for the National Curriculum was undertaken and consolidated in 2014. It can be ascertained that there is a distinct correlation between the implementation of the Strengths Based curriculum and student achievement. There are many theories behind the success of a strength based curriculum. However, this is mainly due to positive subject experiences (well-being and flow) where success is a more likely outcome (Eaves, 2014).



(Graph 1. Student results across 2012-2014)

The ACARA curriculum furthermore takes an inquiry based approach, thus enabling students to take some control over their learning. This embodies a student-centred approach to education with the primary goal being transforming students into confident, efficacious lifelong learners whose work is transformed with a sense of purpose (Lopez and Louis, 2009). By way of utilizing the multi-disciplinary base that is available in the HPE curriculum, students are not only able to access their personal strengths, but also learn to question social, cultural and political factors that influence health and well-being (ACARA, Shape - HPE, 2012).

The ACARA curriculum has been organised into 2 strands with 3 sub-strands for each strand, with both strands having 6 focus areas.

(Diagram 1. ACARA HPE Curriculum structure (ACARA, 2014))

Arranging the curriculum in this manner allows for movement between the strands and focus areas. It allows for students to access strengths and begin the journey to mastery. Not all students will have strengths across all the focus areas. However, as the curriculum is designed to allow for fluidity across focus areas student strengths and positive perceptions can be transferred across. As graph 1 has demonstrated allowing students to access a strengths approach has seen a marked improvement in achievement levels across multiple cohorts. Understanding student strengths and being able to identify them is the key to unlocking this hidden potential.

Identifying individual student talents can be a long but worthwhile process (Lopez and Louis, 2009). There are many different ways to identify specific student strengths, online web quizzes that are run through various companies are the most accurate; however, many charge exorbitant fees for this service. These are quite involved (time wise) and loss of learning time is an important issue. Teachers have an unlimited amount of strategies at their disposal for identifying student strengths; some are more effective than others. Two that are most popular are teacher designed surveys and observations (Wilder, 2015).

The ability of the teacher to properly observe and assess a cohort of students is an essential skill. HPE teachers need the ability to recognise skill execution in dynamic environments (Pill, 2014). Once strengths have been identified they must be placed at the forefront of the teacher's instruction so that greatest achievement can occur. Students will improve at a faster rate if educators focus on their individual strengths, rather than focusing our efforts on their weaknesses (Lopez and Louis, 2009)

Assessing student strength via means of an in-class survey is only as effective as the questioning. Teachers need to be careful when using this method, and should use this method in conjunction with their own observations of students. If the two don't match then one of the instruments isn't functioning as it should. Students are generally honest, however, at times can be harsh on their abilities or lack the self-confidence to recognise their own great potential (Halvorson, 2011). The more times this process is practiced and students understand the meaning behind it, the more accurate the results will be. As with all instruction, it must be taught explicitly how to recognise one's own skills.

How a teacher plans their work programs and understands that each student in their classroom comes with their own set of strengths will ultimately determine the success of this curriculum. Rather than just filling in the 'gaps' that students may have, educators using a strengths based approach engage students who are highly motivated, set their goals, achieve at a high level, make positive choices and complete all tasks they set out to achieve (Schreiner & Anderson, p.22, 2005). Weick et al. (1989, p.353) stated, "People do not grow by concentrating on their problems… The effect of a problem focus is to weaken people's confidence in their ability to develop in self-reflective ways." This new curriculum allows educators to focus on the positivity the future generation brings, rather than focusing on the negativity that may surround them.

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Opening minds: Peer-based mindfulness training in a human movement degree first-year student camp

Dr Maarten Immink & Scott Polley
University of South Australia

Mindfulness is a developed skill in paying attention, and is sometimes described as the opposite of mindlessness. Benefits of mindfulness include improved attention control (Hodgins & Adair, 2010), emotional regulation (Holzel et al., 2011), cognitive function (Lutz, Slagter, Dunne, & Davidson, 2008) and pro-social attitudes (Colzato, Hommel, van den Wildenberg, & Hsieh, 2010). Development of this psychological skill is thought to require prolonged training, however mindfulness benefits have been demonstrated after brief exposure to these techniques (Colzato, Ozturk & Hommel, 2012).

University of South Australia has been conducting an introductory Outdoor Education camp for its Bachelor of Applied Science (Human Movement and Health Studies) Program and it's antecedents for over 40 years, and it has traditionally focused on outdoor physical activities within the 4-day program. Little research has been carried out to investigate the role and place of this experience. In a review of the camp program a decision was made to include introductory mindfulness to the program. 241 Human Movement students attended this student leader facilitated experience. Most of the student leaders attended a 1.5 hour training session in mindfulness in a classroom at the University 3-4 weeks prior to the camp. Student leaders conducted the session largely using a script that included classical mindfulness introductory exercises 'the raisin test', 'sitting exercise' and 'mindfulness walk'.

Despite the lack of training in this field, and the trepidation felt by student leaders conducting activities to peers that may not ordinarily be attracted to this activity, student leaders reported high levels of engagement, and this view was supported by examination of a selection of journal entries.

This pilot program suggests that undertaking introductory mindfulness activities with young adults has potential to engage them positively, and may well contribute to learning outcomes of other experiences. The program also suggests that an introductory activity can be conducted successfully by other young adults with limited background and training. Such training might be extended and holds promise to be incorporated into leader training in Outdoor Education and other fields such as Health and Physical Education. The potential for mindfulness training to support the 'strengths based' focus of the draft Australian Health and Physical Education curriculum (ACARA, 2013) might be investigated further, as well as how mindfulness can contribute to a range of learning outcomes.

Article

In this paper, we report findings from a pilot program where introductory peer-based mindfulness training was provided during an Outdoor Education experience in a first-year camp for tertiary Human Movement students, with the training facilitated by third-year student leaders. The paper reports initial findings regarding whether a brief training session in mindfulness instruction can provide benefit for participants and the possible challenges of introducing mindfulness to tertiary students. The paper then presents future directions for enhancing the outcomes from introductory peer-based mindfulness training.

Mindfulness has been characterised as a psychological skill that allows for purposeful allocation of attention on physical sensations, actions, perceptions, emotions and thoughts in a continuous, receptive and non-judging manner (Kabat-Zinn, 2003). Development of this psychological skill is thought to require prolonged training using techniques such as mindfulness movement and meditation. Nevertheless, mindfulness benefits have been demonstrated after brief exposure to these techniques (Colzato, Ozturk & Hommel, 2012).

Benefits of mindfulness include improved attention control (Hodgins & Adair, 2010), emotional regulation (Holzel et al., 2011), cognitive function (Lutz, Slagter, Dunne, & Davidson, 2008) and pro-social attitudes (Colzato, Hommel, van den Wildenberg, & Hsieh, 2010). As these capacities are important for academic performance and personal wellbeing, it is seems appropriate to expose fist-year tertiary students to mindfulness techniques. Further, given the importance of these capacities for Outdoor Education activities, there is a need to investigate the feasibility of implementing mindfulness techniques in outdoor education settings and benefits that may be derived for Outdoor Education leaders and participants.

The basis for inclusion of mindfulness activity into the first-year camp arose from strategic discussions between the authors about ways to utilise the camp experience as a means to enhance wellbeing, student engagement and academic performance in first-year students with the notion that this would in turn increase student retention in the Human Movement program. In addition, the peer-delivered aspect of the mindfulness activity was thought to provide an opportunity to further enhance leadership development in more senior students leading the camp. Promoting positive affect, student engagement, positive relationships and a sense of inclusion has been highlighted by Oades, Robinson, Green, and Spence (2011) as being necessary factors for a positive university environment where students are enabled to meet their full potential. Given the benefits of mindfulness for these qualities, there was rationale for exposing first-year students to mindfulness especially given the unique opportunity of undertaking this experience in an outdoor setting.

A pilot program was conducted as a preliminary investigation designed to determine if brief, basic mindfulness training could be provided to senior student leaders to enable them in turn

to incorporate mindfulness techniques in an introductory Outdoor Education camp for first-year university students. For this purpose, student leaders were first exposed to mindfulness techniques in training sessions that preceded the first-year camp. Thirteen (7 male and 6 female) out of a total of 23 student leaders attended the training session, which was conducted by Maarten Immink, who is a qualified yoga and meditation instructor with over 10 years of experience in teaching mindfulness techniques and who currently conducts research in mindfulness. Student leaders were naïve to mindfulness techniques at the time of training. The 90 minute training session included a brief lecture introducing the concept of mindfulness, practical activity involving completion of three basic mindfulness techniques described in Williams, Teasdale, Segal and Kabat-Zinn (2007), and discussion about experiences with techniques and the need to complete further training prior to the first-year camp. As an introductory technique, the raisin experiment emphasised open awareness of multiple sensations in habitual actions. In the raisin experiment, participants first hold a raisin in the palm of a hand and are invited to use seeing to explore the object as if for the first time. After this, exploration of the raisin continues by using touch, smell, taste and then chewing and swallowing. After swallowing, participants are invited to imagine the raisin moving down into their stomach and afterwards, pay attention to how their body feels after completing the mindful eating activity. After the raising experiment, participants completed sitting breath awareness as a technique that utilises a natural body process as a way to hold attention without judgement and note the instances when attention is naturally distracted. For this practice, participants are seated in a chair ensuring that the legs are not crossed, the hands are resting on the lap and that overall, the body is well postured in the seated position. Participants then are invited to close their eyes or to lower their gaze as they aim to place and hold their attention on their natural breathing as they keep the body still. Finally, mindful movement was practiced were slow rhythmic body movements, including walking, were performed with the aim of maintaining attention at each moment that the movement unfolds and noting when attention is distracted away from the movement. Mindful movement is practiced from a standing position with the eyes open and participants are invited to be mindful of the movement, sensations associated with the movement, physiological responses associated with the movement (e.g., breathing) and thoughts or feelings associated with the movement. In these three techniques, instructions keep reminding the participant to be vigilant of instances when attention deviates from the focus of the technique and in such instances to gently bring the attention back to the technique without self-criticism or judgement. As such, these techniques place an emphasis on purposeful allocation of attention as well as being open to whatever experience arises. At the conclusion of the training session, student leaders were provided with audio recordings of the techniques to continue to practice on a daily basis to further familiarise themselves with the techniques and to gain insight into what experiences a beginner might have when participating in mindfulness techniques. In addition, student leaders were provided with written scripts for instructing the techniques to prepare themselves for delivery in the first-year camp. Audio recordings and

scripts were provided to student leaders not attending the training sessions so that they could familiarise themselves with the techniques with support of student leaders who attended the session. All student leaders were expected to be prepared to incorporate the raisin experiment, sitting breath awareness and mindful movement techniques into the first-year camp.

In the lead-up to the first-year camp, student leaders reported apprehension about their effectiveness in instructing mindfulness techniques. In a camp planning meeting discussion, a number of student leaders expressed reservations and concerns about the activity, mainly focussed on lack of self-efficacy as mindfulness facilitators. There were also concerns that they would not conduct the activity to a sufficient standard to be engaging, let alone of benefit to the participants. Several leaders reported that they regularly practiced the recorded mindfulness techniques, but most reported little or no engagement in practicing the techniques. Reasons for not engaging in the techniques appeared to range from feelings of time pressure from other activities (academic, work, sport and social) to choices to prioritize other activities besides the mindfulness practices.

The 4-day first-year camp is delivered in an outdoor setting, approximately a 50-minute drive from the Adelaide CBD in the Adelaide Hills, which was thought to be ideal for introduction to mindfulness based on the natural surrounds and the absence of typical distractions such as electronics, mobile communication and access to the internet. Participation in the first-year camp is a key component of the 'Group Dynamics' compulsory course for Human Movement students. Out of an enrolment of 241, 227 students (126 male, 101 female) attended the first-year camp in one of two separate camp dates. The first-year camp included outdoor activities such as half day of rock climbing, half day of environmental service, orienteering, leave no trace instruction, Indigenous cultural introduction, bush cooking and a 2-day overnight bushwalking experience covering a distance of 20 km.

Even with brief meditation training and lack of experience in delivering mindfulness instruction, student leaders reported in a post-camp debrief meeting favourable outcomes including high engagement levels in the mindfulness session from first-year student participants. The student leaders were enthusiastic about the mindfulness component of the 4-day camp. They reported satisfaction in having the opportunity to include the concept of mindfulness and related practical components in the camp. Importantly, they recommended future inclusion of mindfulness training as part of the camp activities that student leaders plan and deliver.

Consistent with student leader perceptions, first-year student journal entries generally indicated perceived enjoyment, meaning and usefulness derived from the mindfulness sessions in the camp. Specifically, as part of a concurrent study designed to investigate the effect of the camp experience on positive and negative affect, reported elsewhere (Mosewich,

Polley and Adams, 2015), 7 out of the 15 participating students wrote about the mindfulness component of the camp in their unstructured reflective journals that were completed at the end of each day on camp. One student's entry described the experience as helpful in enabling them to relax around others while another student also described how mindfulness helped them to relax and additionally, helped them to have a clearer mind and have feelings of being at one with nature. Another wrote that they felt more centred following completion of mindfulness techniques. Other reflections indicated how mindfulness techniques facilitated the feeling of peace and enjoyment, the time to enjoy breathing and being focused, and having time to accomplish goals. Although the available data provides an indication that peer-instructed mindfulness training in first year Human Movement camp provided perceived benefits, further investigation is warranted in order to determine the veracity of these benefits. Future investigations would be strengthened by inclusion of focus group interviews and the use of structured questionnaires or questions to be addressed in journal entries. Importantly, future studies will require a large sample size based on first-year students volunteering to participate in research activity associated with the first-year camp.

In terms of providing training to enable peer student leaders the opportunity to incorporate mindfulness activities in the first-year camp, findings from this pilot study highlight some barriers. These barriers include attendance to sessions where mindfulness and related techniques are introduced by an experienced instructor. Moreover, there is low engagement in self-directed training using audio recordings following the training session. Attendance and low engagement might contribute to perceptions of low importance of the place of mindfulness in camp activity, which in turn, might arise from low self-efficacy in instructing mindfulness techniques. This therefore suggests that instead of one induction session, student leaders should receive a longer period of mindfulness training that includes a number of face-to-face training sessions with an experienced instructor in order to provide adequate support and manage any barriers to participating in regular mindfulness practice. The downside or this, however, is the increase in resource demands in terms of having an experience instructor delivering and student leaders attending group classes. Despite these potential challenges in preparing student leaders for mindfulness instruction in first-year camp, responses from student leaders indicate a high level of valuing the place of mindfulness in camp. Importantly, their reports indicate an enriched experience as student leaders due to the mindfulness activities, which appeared to be mirrored in the enriched experience of first-year camp participants. Thus, there is the potential to further enhance leadership development opportunities for the student camp leaders through enabling them to have the capacity to effectively deliver mindfulness instruction as part of the outdoor activities they lead. It is hoped that these preliminary findings will enlighten educators, leaders, guides and facilitators as to the potential of mindfulness in outdoor settings. For tertiary education program, the promising results with first year students suggest that mindfulness may well have an application in senior Physical and/or Outdoor Education programs. In a broader scope, the

potential for mindfulness training to support the 'strengths based' focus of the draft Australian Health and Physical Education curriculum (ACARA, 2013) might be investigated further, as well as how mindfulness can contribute to a range of learning outcomes.

Importantly, though, is the need to recognise that quite basic mindfulness techniques were delivered by student leaders in a controlled setting involving supervision by senior Outdoor Education staff. Basic mindfulness techniques were specifically employed in this program given the low level of mindfulness instruction that student leaders would possess and that first-year students were most likely to be naïve to mindfulness techniques. Caution and restraint must be practiced in instances when there is an opinion that instruction of mindfulness techniques, does not require formal training and extensive experience, particularly in outdoor settings and or with clients having special needs including those arising from behavioural problems or psychiatric disorders. Although barriers may be present and there is a need to be cautious with the application of peer-based mindfulness, the results of this pilot study suggest that this practice shows promise for delivering a range of learning and emotional benefits for peer leaders and participants alike.

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Engaging students in activities beyond the classroom: A social-ecological exploration of primary school students' enjoyment of school-based physical activities

Dr Brendon Hyndman

International Graduate Centre of Education, School of Education, Charles Darwin University

An important consideration for schools to develop children's physical activity habits is the identification of psychosocial correlates of children's physical activity such as enjoyment. The purpose of this study was to uniquely assess children's enjoyment of school-based physical activities beyond the health and physical education classroom, including the type of activities children enjoy and the extent of his/her enjoyment. The Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire was administered to 281 children aged 8-12 years, attending three primary schools in regional Victoria. In this paper, the social-ecological model levels of influence on children's enjoyment are discussed including (1) intrapersonal (individual), (2) interpersonal (social), and (3) physical environment and policy/organization variables to identify the broader influences on children's enjoyment of school-based physical activity. In order for age and gender-specific comparisons to be made for the LEAP questionnaire categories, independent t-tests were conducted. The findings revealed that the students' enjoyment of school-based physical activities declines with age. It was also discovered that females had significantly higher enjoyment compared to males for the majority of school-based physical activities. With understandings of the types of school-based physical activities that are most enjoyable to students during school breaks, teachers and school decision makers can employ the social-ecological model insight gained within the current study to guide future school-based planning and design.

Key words: Primary school, Enjoyment, Physical Activity, Children, Social-ecological model

Emerging research is beginning to explore the important link between enjoyment and children's participation in physical activity (Moore, Yin, Duda, Gutin, & Barbeau, 2009; Salmon et al., 2005). Enjoyment stems from kinaesthetic experiences and the achievement of personal goals and is defined as "a positive affective response to an experience that reflects generalised feelings such as pleasure, liking, and fun" (p32, Scanlon & Lewthwaite, 1986). The positive association between enjoyment and behaviour change is emphasised by the Self-Determination Theory (SDT; Lawman, Wilson, Van Horn, Resnicow, & Kitzman-Ulrich, 2011). Self-Determination Theory outlines that if children enjoy participating in a particular physical activity (e.g. intrinsic motivation) this increases the likelihood of children adopting and maintaining participation in physical activity. Enjoyment has been shown to mediate involvement and participation in sport (McCarthy, Jones, & Clark-Carter, 2008) and physical

activities (Dishman et al., 2005; Moore et al., 2009; Motl et al., 2001). Other studies have also recognised the link between enjoyment and correlates of physical activity including self-determination (Ntoumanis, 2002), motor skill proficiency (Okely, Booth, & Patterson, 2001), task orientation (Boyd & Yin, 1996), self-efficacy (Rovniak, Anderson, Winett, & Stephens, 2002), goal setting (Rovniak et al., 2002) and perceived competence (Boyd & Yin, 1996; Kriemler et al., 2011).

Mediators (e.g. mechanisms of change) of children's behaviour such as enjoyment have been identified as important to evaluate the effects of school-based physical activity interventions (Kriemler et al., 2011). A lack of effective interventions targeting school children's physical activity participation could be due to the poor understanding of the mediators of behaviour change such as enjoyment (Baranowski & Jago, 2005). While a number of studies have explored the influences of children's age and gender on school-based physical activity participation, none of these studies have considered children's enjoyment. The purpose of the present study was to assess children's enjoyment of school-based physical activities beyond the health and physical education classroom, including the type of activities children enjoy, the extent of his/her enjoyment and across age levels.

Methods

Ethical approval for the study was obtained from the University of Ballarat Human Research Ethics Committee, the Department of Education and Early Childhood Development (DEECD) in Victoria and permission was gained from the school principal. Children and their parents received a plain language statement outlining the research, along with a participant and parental consent form.

Within the study, the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire was administered to 281 children aged 8-12 years old (response rate: 63.3%) attending three primary schools in regional Victoria (Males= 141; Females= 140; 8 year olds= 52; 9 year olds= 91; 10 year olds= 54; 11 year olds= 66; 12 year olds= 18). Each of the primary school's Index of Community Socio-Educational Advantage (ICSEA) were '1065' (school 1; above average), '1105' (school 2; above average) and '976' (school 3; below average; ACARA, 2015). The LEAP questionnaire was used to measure children's enjoyment of school-based physical activities beyond the classroom (Hyndman, Telford, Finch, Ullah, & Benson, 2013). The LEAP questionnaire is a reliable, context-specific questionnaire consisting of 39 items, categorised into social-ecological model levels of influence with components including: (1) intra-personal (individual), (2) inter-personal (social) and (3) physical environment and policy/organisation variables to identify the broader influences on children's enjoyment of school play and lunchtime activities (Salmon & King, 2010). Social-ecological models suggest that to understand children's physical activity behaviour it is necessary to consider multiple factors; intra-personal, inter- personal,

physical environment and policy/organization (Salmon & King, 2010). Within the LEAP questionnaire, the intra-personal component includes six categories (20 items) examining children's enjoyment of activity during school breaks, basic locomotion, imaginative activities, play-based movements, activity variations and sedentary behaviour. The inter-personal component consists of one category (two items) examining children's enjoyment of social activities. The physical environment and policy/organisation component included six categories (17 items) examining children's enjoyment of activities within different climatic conditions (warm and cool), man-made items, natural items, activity area size and activity within sheltered areas. All enjoyment items are rated on a five-point likert scale (1=very unhappy; 2=unhappy; 3=not sure; 4=happy; 5=very happy; Hyndman et al., 2013). A score is computed by calculating the average of each LEAP questionnaire category.

All questionnaires were coded and data was entered into the Statistical Package for the Social Sciences data analysis program. Normality of the data was checked by conducting a range of descriptive analyses. Data cleaning involved checking any unusual scores or missing values against the original survey and errors were amended to the spreadsheet. In order for comparisons to be made between the gender and age for the LEAP questionnaire categories independent t-tests were conducted.

Results

Age-specific enjoyment of school-based physical activities

Children's enjoyment of intra-personal (individual) school-based physical activities

For the enjoyment category 'school break activities' 12-year-old children had significantly lower average enjoyment scores in comparison to 8-year-old and 10-year-old children. The 12-year-olds also had significantly lower average enjoyment for the categories 'basic locomotion' (in comparison to 8-year-olds), 'imaginative activities' (in comparison to 8 & 9-year-olds) and 'play-based movement' (in comparison to 8 & 9-year-olds). Within the 'imaginative activities' category, children's enjoyment of the item *using imagination* was significantly higher in 11-year-olds and 12-year-olds in comparison with 8-year-olds and 9-year-olds. The 12-year-old children's enjoyment was significantly lower for the individual enjoyment items of *playground activities* (compared with 8-year-olds; school break activities category), enjoyment of *being active* (compared with 10-year-olds; school break activities category), enjoyment of *jogging* (compared with 8-year-olds; basic locomotion category) and enjoyment of *hiding* (compared with 8 & 9-year-olds; play-based movement category).

Children's enjoyment of interpersonal (social) level school-based physical activities

There was no significant age-specific difference for children's enjoyment of the 'social activities' category. Within the 'social activities' category, 12-year-old children had

significantly lower enjoyment for the item examining children's enjoyment of *playing with friends* compared with all other age groups.

Children's enjoyment of physical environment/policy level school-based physical activities

For the enjoyment category 'man-made items', 12-year-old children had significantly lower enjoyment in comparison to all other age groups. For the enjoyment category 'activity variation', 8-year-old children had significantly higher average enjoyment scores in comparison to all other age groups. There were no other significant age-specific differences for physical environment/policy play categories. Within the 'man-made items' category, children's enjoyment of *using sports equipment* and *using hard-surfaced areas* was significantly lower for 12-year-old children in comparison to all other age groups.

Gender-specific enjoyment of school-based physical activities

Children's enjoyment of intra-personal (individual) level school-based physical activities

Females' average enjoyment scores were significantly higher than males for the enjoyment categories 'imaginative activities', 'play-based movements', 'activity variation' and 'sedentary behaviour'. Males' average enjoyment was significantly higher than females for the category 'cool conditions'. Examining the individual enjoyment items, females' average enjoyment was significantly higher than males for the *playing at lunchtime*, *sitting*, *using imagination*, *resting*, *walking*, *climbing, hiding*, *sliding* and *creating*.

Children's enjoyment of inter-personal (social) level school-based physical activities

There were no significant differences between males' and females' enjoyment within the 'social activities' category. Females had significantly higher average enjoyment of the individual item examining enjoyment of *playing with friends*.

Children's enjoyment of physical environment/policy level school-based physical activities

Females' average enjoyment scores were significantly higher than males for the enjoyment categories 'man-made items' and 'sheltered activities. Males' average enjoyment was significantly higher than females for the category 'cool conditions'. Examining the individual enjoyment items, females' average enjoyment was significantly higher than males for *playing with sports equipment*, *activities with natural features*, *hard surfaces*, *movable equipment from home*, *changing activity location* and *changing activities*. In contrast, males' average enjoyment was significantly higher for *playing in cold conditions* and *playing in wet conditions*.

Discussion

The unique contribution this study makes to the international literature is that this is the first

study to report the influence of age and gender on primary school children's enjoyment of school-based physical activities beyond the classroom. The findings from the study suggest that younger children and females tend to exhibit significantly higher enjoyment of school physical activities across a range of social-ecological model categories.

Similar to the present study of enjoyment of physical activities declining with age, findings from a 12-month intervention revealed that an increased age had a negative association with children's moderate to vigorous physical activity (MVPA) and vigorous physical activity (VPA; Ridgers, Stratton, Fairclough, & Twisk, 2007). Additionally, a study also discovered that older children participate in a higher proportion of sedentary behaviour or light accelerometer-determined physical activity than younger children (Lopes, Vasques, Pereira, Maia, & Malina, 2006). In the present study, 12-year-old children's enjoyment of activities was significantly lower for basic locomotion (e.g. jogging), man-made items (e.g. using sporting equipment), school break activities (e.g. being generally active at recess), play-based movements (e.g. hiding) and playing on hard-surfaced areas (e.g. courts). In contrast to these studies, researchers examined the influence of themed weekly activities (e.g. a fitness circuit week, obstacle course week, frisbee week) on children's pedometer-determined physical activity, revealing that older children had significantly higher steps than younger children (Stellino, Sinclair, Partridge, & King, 2010). In the current study older primary school children's enjoyment of imaginative play activities was significantly lower than younger children. As older children can become bored of school-based physical activities (Chancellor, 2013), it is important older children display imagination in their physical activities. Further research could therefore be conducted into why older children's enjoyment of imaginative physical activities could be lower than younger school children.

It is important that teachers are aware of the influences on primary school children's enjoyment, as it has been reported that there is an environmental disconnect between primary and secondary school that may be contributing to a decline in physical activity as children reach secondary school (Brady, 2004; Dollman, Norton, & Norton, 2005; Pate et al., 2007). The lack of connection from primary to secondary school environments for physical activity (Haug, Torsheim, & Samdal, 2008) could be counteracted if teachers are aware of the areas of physical activity that are influenced by age and gender. Teachers and school decision makers can intervene to counteract specific or concerning discrepancies in children's enjoyment of school-based physical activities.

Gender is the most common demographic variable that has been investigated as a correlate to children's school-based physical activity, especially during recess periods (Ridgers, Salmon, Parrish, Stanley, & Okely, 2012). A major review of the intra-personal (individual) correlates of children's physical activity during recess periods between January 1990 and April 2011 revealed that being male correlated with physical activity participation across 31 studies (Ridgers et al., 2012). This finding of males being more active than females

supports previous literature reviews of pre-school (Hinkley, Crawford, Salmon, Okely, & Hesketh, 2008), childhood (Sallis, Prochaska, & Taylor, 2000) and adolescence (Van Der Horst, Paw, Twisk, & Van Mechelen, 2007). However, within the present study females possessed a significantly higher level of enjoyment for the majority of school-based physical activity categories including activity variation, sheltered activities (e.g. indoors), imaginative activities, using man-made items (e.g. sports equipment), activities with natural features (e.g. trees, gardens) and on hard-surfaced areas (e.g. sport courts). Although supporting previous studies, females possessed a significantly higher score than males for sedentary behaviour (e.g. sitting). It is possible that females' enjoyment of physical activities may not convert to physical activity participation.

It is suggested that females often view physical activity periods as an opportunity to socialise (Pellegrini & Holmes, 2006), therefore promoting physical activities in which females can be social and physically active should be a high priority. The present study supports this finding with females possessing significantly higher enjoyment for social activities. Further research is warranted to examine the link between females' enjoyment and participation in physical activity. In contrast, males had a significantly higher enjoyment of activities in cool and wet conditions compared with females. Due to the study being conducted in the middle of Winter where the male-dominated Australian rules football is predominant, such a finding is expected. Future research is required to examine the correlates of boys' and girls' physical activity individually, rather than simultaneously (Ridgers et al., 2012).

Until recent decades, previous research had not investigated the context and broader determinants within which health behaviour occurs, rather focusing on the individual influences on physical activity behaviour (Stevenson & Burke, 1992; Stokols, 1996). These broader influences on health behaviour are linked to the social-ecological model of human behaviour, which emphasises a need for a 'person-environment' fit (Stokols, 1996), implying that there is an association between the intra-personal (individual) level, inter-personal (social) environment level, physical environment level and policy level influences. Many health behaviour models do not show the interactions between the environmental factors and can miss vitally important influences on children's physical activity. Knowledge of these multiple influences identified in the present study via the LEAP questionnaire are important to guide future school-based physical activity interventions. The present study provides insight for teachers of the multiple influences on children's enjoyment of school-based physical activities beyond the classroom. Teachers can use the results of this study to consider tailoring school environments to ensure that age and gender-specific enjoyment of physical activities are accounted for. Attempts to modify physical activity behaviour at a single level on its own (e.g. social activities) are often resisted by other environmental levels of influence (Salmon & King, 2010). There are many factors within the environment that can conspire against changes that are applied addressing a single environmental level (Salmon &

King, 2010). Therefore, successful physical activity programs must not only modify an individual's physical activity participation, but also the multiple level environmental context (e.g. evaluated via the LEAP questionnaire) in which physical activities are taking place (Salmon & King, 2010).

Conclusion

In summary, this study revealed that primary school children's enjoyment of school-based physical activities declines with age. Older children had significantly lower enjoyment for a range of physical activities including basic locomotion, using hard surfaced areas, sports equipment, play-based movements, being active and school break activities. It was discovered that females had significantly higher enjoyment compared to males for the majority of school-based physical activities. In contrast, males possessed significantly higher enjoyment for physical activities within cool and wet conditions. Teachers and school decision makers can employ the social-ecological insight of children's age and gender-specific enjoyment to guide future school-based physical activity planning and design.

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Looking beyond the classroom walls: An insight for teachers of primary and secondary students' perceptions to enhance the school physical activity environment

Dr Brendon Hyndman
International Graduate Centre of Education, School of Education, Charles Darwin University

With an increasing focus on schools to facilitate physical activity, there is more demand than ever for teachers to equip children with the necessary skills to be physically active. Gaining an understanding of students' perceptions could help teachers promote increased physical activity levels among school students. The purpose of this paper was to explore primary and secondary students' of features to enhance the school physical activity environment. Four government schools (two primary and two secondary) in the western region of Victoria were recruited for the study. Focus groups and map drawing were used to gain a broad understanding of primary and secondary students' perceptions for enhancing the school physical activity environment. During this study, 78 students from four government schools (two primary and two secondary) were recruited with students aged 10 to 13 years. The focus group discussions consisted of 54 students (32 primary and 22 secondary) and the map drawing sessions included 24 students (17 primary and 7 secondary). Gender-specific perceptions of the school physical activity environment will also be discussed. Currently, many school facilities are implemented by adults. Listening to students' perspectives of the features that could enhance school physical activity environments may assist in developing strategies to reduce the time students spend engaged in sedentary behaviours and to promote healthy, active students. The features identified in this paper provide important information for teachers and school decision makers to consider when targeting children's physical activity within the school environment.

Keywords: primary school, secondary school, physical activity, environmental features, facilities

Introduction

A well-designed school environment can facilitate physical activity, yet recent national trends suggest a number of schools have removed physical activity spaces or equipment, possess crowded spaces and can implement restrictive policies that can result in reduced opportunities for students' physical activity (Hyndman, Telford, Finch, & Benson, 2012). It has been revealed that the design of school facilities often result from parent/teacher collaboration and from principal decisions (Chancellor, 2013). Reliance on adults in the design and planning of students' physical activity environments can lead to undesired physical activity settings that can have long-term consequences for students' social and

emotional development (Willenberg et al., 2009). In addition, students may believe they have little influence on the set up of their school environments for physical activity. Students' perceptions are an important consideration for teachers and schools when planning school environments for physical activity. Despite students generally being the main consumers of such environments during sport, health, physical education (PE) and non-curricular periods, adults are often the decision makers when planning school physical activity environments.

Increasing understanding of the features students' perceive to enhance school physical activity environments will allow for more effective interventions targeting youth physical activity participation (Hyndman et al., 2012; Hyndman, 2015). Within Australian schools, the most popular physical activity features include grassed areas (94%), basketball courts (89%), football ovals (80%), netball courts (74%), cricket pitches (56%), soccer pitches (38%) and even tree climbing (17%; Chancellor, 2013). To date, there has been limited insight for teachers of the perceptions of both primary and secondary school students of features to enhance the school physical activity environment. Providing an understanding of students' ideal physical activity facilities could help teachers facilitate increased physical activity levels among students and provide considerations for planning and design of school-based physical activity (Hyndman, Chancellor & Lester, 2015). Although schools are acknowledged as a key setting for physical activity, it remains unclear which specific features primary and secondary students desire in order to enhance the physical activity environment.

This research therefore addresses an important gap within the literature relating to school-based physical activity. The present investigation employed a qualitative research methods approach using focus groups and map drawing, which aimed to provide an insight for teachers of primary and secondary students' perceptions of features to enhance the school physical activity environment.

Methods

Participants

The Principals of four government schools (2 primary and 2 secondary) in the western region of Victoria were randomly selected and invited to participate in the study by researchers. All schools from the western region were consecutively numbered, and a random number generator was used to select the four schools. Primary school students (all Year 5 and 6 students; n=197) and secondary school students (all Year 7 and 8 students; n=643) were invited to participate via a letter and consent form distributed. Year five and six primary school students were invited to participate as students over eight-years-old have been revealed to be more capable of accurately self-reporting their own health behaviour (Riley, 2004). In order to identify the influences on physical activity between primary and secondary school students, year seven and eight secondary school students were invited to participate.

Qualitative research methods were employed to capture the rich descriptions (Denzin & Lincoln, 2008) of primary and secondary students' perceptions of features to enhance the school physical activity environment, consisting of both focus group discussions and map drawing explanations. The qualitative research followed a Grounded Theory approach, a qualitative research strategy that allows for the participants and data to 'lead the way' (Gratton & Jones, 2004) in relation to a particular context such as the school environment. Within this study, Grounded Theory research strategies (e.g. sampling procedures, data analysis techniques) were used. Grounded Theory approaches to research consist of the researcher possessing few preconceived ideas when beginning a topic of research and the relevance to the topic (e.g. features to enhance the school physical activity environment) emerge throughout the research process (Strauss & Corbin, 1998). Such aspects of Grounded Theory align with the research aims of the study, therefore methodological suggestions from Strauss and Corbin (1998) and two recent reviews of Grounded Theory research (Holt & Tamminen, 2010; Weed, 2010) were followed.

All students interested in participating were instructed to obtain parental consent and return their consent forms to the general office of their school. The first 15 students from each year level were invited to attend the scheduled focus group and/or map drawing session. During this study, 78 students from all four schools aged 10-13-years-old (50% females; 50% males) returned their consent forms by the due date and all students who volunteered participated in the study (Year 5= 29; Year 6= 20; Year 7= 29). There were no year eight students recruited for the study. The focus group discussions consisted of 54 students (32 primary and 22 secondary) and the map drawing sessions included 24 students (17 primary and 7 secondary).

Ethical approval for the study was obtained from the University of Ballarat Human Research Ethics Committee, the Department of Education and Early Childhood Development (DEECD) and permission was gained from the school Principals.

Focus Group Discussions

For the present study, seven focus groups (4 primary school and 3 secondary school) were conducted for students who agreed to participate. The six to ten students in each focus group were asked a series of questions using a semi-structured interview schedule in relation to their desired features to enhance the school physical activity environment. Focus group questions included: *'If you were designing your ideal school environment to encourage physical activity, what would you include?'* and *'Why would you include these features to enhance the school physical activity environment?'* The focus group discussions were conducted for 30-60 minutes in a quiet room separate to where the map drawing exercise took place to prevent the discussion influencing the drawings. All focus group discussions

were audio recorded and detailed comments were taken of students' focus group answers and body language during each session to aid transcription.

Map Drawing Explanations

Map drawing has been revealed as an effective measure of students' knowledge of their environments (Hume, et al., 2005). Map drawing has also been used to examine students' cognitive thoughts about their environments by providing students opportunities actively illustrating thought patterns (Hyndman, et al., 2012). Implementing the use of map drawing, in addition to the focus group discussions, has been established to provide a more comprehensive insight into children's perceptions (Hume, et al., 2005) of features to enhance the school physical activity environment.

Sheets of A3 sized paper were distributed to students including an instruction sheet with the description of the mapping task that asked primary (Figure 1) and secondary (Figure 2) students to draw their: 'ideal space for physical activity.' At the completion of the focus groups, students were invited to explain their maps to the researcher at which time they were audio recorded. The audio recording of the map drawing explanations ensured that map features were correctly interpreted to avoid misunderstanding, complement the focus group perceptions and to clarify each child's perspective of their drawings.

Figure 1: Map drawings from primary students illustrating their ideal school space for physical activity

Data Management

All focus group data was de-identified and referred to by pseudonym. Data collected from focus group sessions were transcribed verbatim and analysed using the NVivo version 8

software package (QSR International). All audio recorded focus group and audio recorded map drawing explanations were transcribed by a trained transcriptionist. The analysis of the transcriptions were based upon the identifying the emerging themes of both the primary and secondary school groups' ideal features to improve the school physical activity environment. The information provided in the focus groups and map drawing explanations were used to determine suggestions from students of their ideal features to enhance the school physical activity environment.

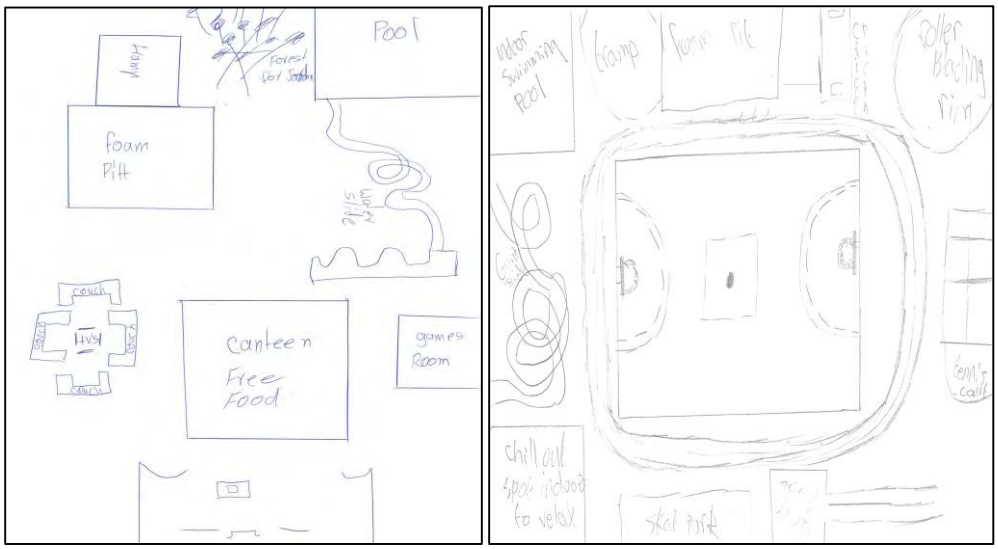

Figure 2: Map drawings from secondary students illustrating their ideal school space for physical activity

Results

Whilst a range of sporting facilities are highly common within Australian schools for physical activity participation (Chancellor, 2013), the results reveal insight into further desired features to encourage school physical activity such as adventure physical activity facilities (e.g. rock climbing walls), recreational physical activity facilities (e.g. jumping pillows), physical activity excursions, animal activity programs and teacher-directed activities. Sporting facilities that aren't as common in schools were also identified such as running tracks. In addition to specific facility features, primary and secondary students revealed policies within the school environment for physical activity such as equipment borrowing policies, access to sports equipment/areas, music during physical activity time and additional PE lessons (including external PE). Key themes identified from both primary and secondary school focus groups can be observed in Table 1.

Table 1. Themes emerging from the primary school and secondary school focus groups and map drawing explanations.

Primary school students	Secondary school students
➢ **Adventure physical activity facilities** (e.g. low ropes courses, rock climbing equipment, increased height of equipment); ➢ **Excursions to encourage physical activity** (e.g. sporting organisations); ➢ **Fitness/gym equipment** (e.g. treadmills); ➢ **Maintaining physical activity facilities** (e.g. replacing/updating equipment); ➢ **Natural environmental features** (e.g. hill slopes, tree climbing/shaded activities); ➢ **Policy considerations** (e.g. more PE lessons, more variety of facilities, motivational music); ➢ **Recreational physical activity facilities** (e.g. jumping pillows, mazes, obstacle courses); ➢ **Sporting facilities** (e.g. increased size, running tracks); ➢ **Teacher-directed activities** (e.g. bike education classes, external PE classes etc.).	➢ **Adventure physical activity facilities** (e.g. rock climbing walls, adventure flying foxes, tobogganing, tyre swings); ➢ **Excursions to encourage physical activity** (e.g. aquatic facilities, excursion roster); ➢ **Maintaining physical activity facilities** (e.g. maintaining facilities); ➢ **Natural environmental features** (e.g. water sports, tree climbing); ➢ **Policy considerations** (e.g. sporting equipment access, borrowing policies, more variety of facilities, temperature regulation); ➢ **Recreational physical activity facilities** (e.g. Wii sports, tunnels, jumping facilities); ➢ **Sporting facilities** (e.g. gymnastics facilities).

Discussion

This study provides greater understanding for teachers of the features both late primary and early secondary school students' perceive would enhance the school physical activity environment. Understanding how students are physically active within the physical environment is important to identify features to develop effective school physical activity interventions (Hyndman, Benson, Ullah, & Telford, 2014; Hyndman, Telford, Finch, Ullah, & Benson, 2013). Within Australian schools, the most popular physical activity features include grassed areas, basketball courts, football ovals, netball courts, cricket pitches, soccer pitches and even tree climbing (Chancellor, 2013). Many of these sporting facility features prevalent in Australian schools were identified by students in the present study as ideal to

encourage physical activity. Interestingly, a number of unique themes for physical activity were also identified such as a range of adventure physical activity facilities (e.g. rock climbing walls, low ropes courses), excursion programs, fitness equipment, recreational facilities (e.g. jumping pillows, obstacle courses, Wii Sports), teacher-directed activities (e.g. external PE classes) and other sporting facilities such as running tracks. Consistent with a 2012 review (Ridgers, Salmon, Parrish, Stanley, & Okely, 2012), the present study highlights a need for greater facility provision and variety of facilities to accommodate students' diverse interests and needs for physical activity. Providing students with diversity of options can promote 'choice', established to be a major aspect of students' enjoyment of the school physical activity environment (Stellino, Sinclair, Partridge, & King, 2010). Ensuring there are a range of facilities within the school that promote adequate choices can accommodate physical activity for students' different individual preferences and ensure that facilities can cater for different sex, ages and weight statuses (Stellino et al., 2010).

A number of suggestions from the present study such as natural features, adventure activities and sporting facilities to encourage school-based physical activity have been reflected in previous studies. A recent study identified that students perceived sporting facilities, adventure type facilities and fixed facilities as facilitators for school physical activity (Hyndman et al., 2012) in contrast to lounge and food areas. Features within the natural environment (e.g. trees, grass and rocks) have also been perceived as important influences to engage children in school physical activity (Dyment, 2005; Dyment & Bell, 2007, 2008; Dyment, Bell, & Lucas, 2009). It has been revealed that spaces need to be suitable for certain activities (e.g. football on a field rather than court) and that weather could be a key influence on school physical activity patterns (Stanley, Boshoff, & Dollman, 2012). Similar to primary school students' perceptions in the present study for larger/maintained activity areas, it has been reported that students can perceive the size of spaces, crowded spaces and conditions of facilities as potential barriers to physical activity in schools (Stanley et al., 2012). It is important to gain an understanding of students' perceptions to enhance school-based physical activity to inform interventions from the students' perspectives (Hyndman et al., 2013).

An interesting finding from the present study was the degree of similarity in the themes for both late primary and early secondary school students to encourage physical activity. The main thematic differences between the groups were the suggestions for more teacher-directed activities such as bike education/external PE classes (primary) and the presence of animal activity programs such as dog walking (secondary). With PE programs having such a positive impact within curricular time, there is potential for external classes to encourage further school physical activity participation (Lee, Burgeson, Fulton & Spain, 2007). The presence of animal activity programs such as dog walking have also been revealed to have a significantly positive influence on the physical activity of primary school girls (Salmon, Timperio, Chu & Veitch, 2010) and is worth exploring within secondary

schools. Such similarities in desired physical activity feature themes could be due to the closeness in age, as many of the year seven secondary students were just one or two years older than the primary students. The similarity in perceptions from the present study contrast the decline in physical activity evident during the transition between primary and secondary school (Brady, 2004; Hyndman et al., 2012; Pate et al., 2005). The lack of connection from primary to secondary school environments to facilitate physical activity has been reflected by a study conducted by Haug and colleagues (Haug et al., 2008). Haug discovered that students' physical activity peaked in year six, followed by a significant decline in year seven for females and in year eight for males. Despite students' perceptions being similar in the present study, it could be that there is a lack of facilities in secondary schools that can cause physical activity declines (Haug et al., 2008). Secondary school students have been found to be three times more likely to be physically active if schools introduced more facilities (Haug et al., 2010). Although secondary school students have perceived a range of suggestions to enhance their physical activity environment in the current study, there is often an increased lure of sedentary opportunities at secondary schools that can negatively influence adolescents' energy, emotions and interest for physical activity (Hyndman et al., 2012; Allison, Dwyer, & Makin, 1999; Kohl & Hobbs, 1998). The present study provides some insight into potential features that could encourage increased physical activity participation in both primary and secondary school students. Further research into the connection between school facilities and physical activity participation is also warranted.

Similar to the recreational activity themes identified by students in the present study, fixed facilities (e.g. climbing equipment; Willenberg et al., 2009) and obstacle courses (e.g. a movement course/pathway with diverse equipment to navigate; Haug et al., 2010; Haug et al., 2008) have been reported to facilitate students' school-based physical activity participation. Fixed facilities have been shown to be positively associated with the physical activity levels of junior adolescents (Haug et al., 2010). In contrast, the themes identified in the present study such as climbing areas (primary & secondary ; Haug et al., 2008) and an enclosed area (secondary; Haug et al., 2008) have been reported to have no association with physical activity. No association has also been identified for fixed equipment facilities with the physical activity of female adolescents (Haug et al., 2010). As studies examining the quantity of physical facilities (Haug et al., 2010; Haug et al., 2008; Haug, Torsheim, & Samdal, 2009) and sport-specific facilities (Jones et al., 2010) have revealed positive correlations with physical activity, the types of features within the school physical environment that can facilitate students' physical activity require further examination (Hyndman & Lester, 2015). The present study suggests that not all physical activity facilities are desired by students for physical activity participation (e.g. students didn't suggest surface markings, sandpits etc.). Nonetheless, due to the variety of themes revealed by students' perceptions, it would be wise for schools to focus on the provision of a diverse range of equipment to ensure optimal opportunities for students to engage in their desired type of physical activity.

The methodology used in this study was innovative and to our knowledge was one of the first studies that have employed a combination of focus group discussion with map drawing to examine students' perceptions of features to enhance the school physical activity environment. In addition to the physical environment features, it is important teachers develop policies that ensure students are supported to be physically active. Both primary and secondary students revealed policies that are important within the school environment for physical activity such as borrowing policies, access to sports equipment/areas, music during physical activity time and more PE lessons (including external PE classes). Physical activity policies can be unique to each school (Commonwealth of Australia, 2009) and in order to enhance physical activity environments it is important to ensure that such policies are matched with the implementation of the physical activity features identified (Hardman, 2008; Jenkinson & Benson, 2009).

It should be acknowledged that the findings from this study are not generalisable to other school populations due to the perceptions emerging from a small number of regional primary and secondary students. Additionally, a quantitative audit of the map drawings and additional quantitative measurement of students' use of specific school physical activity facilities would have identified further insight into students' preferred features for physical activity participation. Nonetheless, this pilot study provides educators with important insight into features for the future provision of primary and secondary students' physical activity.

The present study can be linked to the Australian Institute for Teaching and School Leadership (AITSL, 2015) standards that outline that 'teachers should know students and how they learn' (e.g. know what features are important to students to encourage physical activity; Professional Knowledge, Standard 1), 'create and maintain supportive and safe learning environments' (e.g. create and maintain a supportive environment for students to transfer, practice and develop physical skills; Professional Practice, Standard 4) and 'plan for and implement effective teaching and learning' (e.g. ensure school environments are planned for to promote students' development of physical skills; Professional Practice, Standard 5). There are also range of curricular points related to students' engagement in schoolyard physical activities within the 'contributing to healthy and active communities' and 'moving our body' sub-strands within the Australian HPE F-6 curriculum. There are a number of transferable facilities within the schoolyard for students to demonstrate, practice and trial physical skills being developed and taught by educators within HPE classes.

Conclusion

This qualitative investigation provides insight into both primary and secondary students' perceptions of features to enhance their school physical activity environments. It was discovered that the majority of themes identified were relatively similar between both school sectors. Whilst a range of sporting facilities are very common within Australian schools for

physical activity participation (Chancellor, 2013) the present study also revealed insight into further desired features to encourage physical activity such as adventure physical activity facilities (e.g. rock climbing walls), recreational physical activity facilities (e.g. jumping pillows), physical activity excursions, animal activity programs and teacher-directed activities. In addition to specific facilities, primary and secondary students revealed policies within the school environment for physical activity such as equipment borrowing policies, access to sports equipment/areas, music during physical activity time and additional PE lessons (including external PE). The multiple suggestions of features to enhance physical activity perceived by primary and secondary students' can be used by teachers to gain an awareness of and create environments conducive to enhancing school-based physical activity levels.

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Enhancing Well-being – Naturally

Scott Adams, Amber Mosewich & Scott Polley
University of South Australia

'Wellbeing is the combined physical, social, emotional, cognitive and spiritual state of being. Positive wellbeing includes being optimistic and engaging with life. It means having a sense of purpose, self-acceptance and positive relationships.' (Department of Education and Child Development, 2007, p. 16)

Introduction

The University of South Australia has conducted a dedicated Human Movement program since 1998, when a more generic degree was formed following the dissolution of a 4 year degree in Health and Physical Education and a 3 year degree in Sports Science. Those choosing to be teachers would select Health and Physical Education electives, and undertake a postgraduate Master of Education, later to become the Master of Teaching.

The Health and Physical Education program had a compulsory camps/Outdoor Education component since the 1970's, with a first year bush camp, second year aquatics camp and a third year snow skiing camp. An Outdoor Education study stream was also available on application. The Sports Science program did not have any compulsory outdoor experiences, although it was possible to undertake Outdoor Education electives.

With the advent of the new Human Movement program, questions were raised about the role and place of the camps/Outdoor Education program, particularly with only a selection of students likely to become teachers. Staff at the time believed that a first year camp program would be invaluable for all students, regardless of their professional outcome, to develop stronger social, learning and professional development relationships as the program grew larger and less focussed. A decision was made to include an elective first year camp as part of one of the compulsory courses to be conducted in an environment close to campus.

The four day 'camp' is now a compulsory component of the Group Dynamics course – retitled Introduction to Group and Team Psychology from 2015 - with 227 students out of a possible 241 (126 male and 101 female) attending in 2014, mostly aged 18-20 years but with some older students also participating. Fourteen students did not attend for medical or compassionate reasons. Two camps took place during the mid-break in semester 2, with approximately an equal number of students in each. The camp is largely organised by University technical and teaching staff. Outdoor Education study stream students were group leaders, teaching and managing groups of between 12 and 18 student campers through a three night tent camping program. The program included a half day of rock climbing, half day of environmental service, orienteering, introductory mindfulness, leave no trace (LNT) instruction, Indigenous cultural introduction, bush cooking and a two day overnight bushwalking experience. Each component

of the experience is reviewed by the group leaders with a large focus on group dynamics, but also broader learning outcomes of such experiences in natural environments. Experienced Outdoor Education staff provided both oversight and feedback for student leadership.

For the last few years, students completing the camp had been asked to undertake a learning journal to reflect on their experiences of camp. An informal review of selected journals between 2011 and 2013 suggested that the camp experience may well contribute to feelings of well-being, with the potential to contribute to improved social and learning outcomes, as well as contribute to positive affect, emotion and mood.

It is likely that a significant proportion of the first year Human Movement student cohort have experienced depression, either personally or through contact with peers who have had depression. Depression is now the leading disability globally, affecting 350 million people world-wide (World Health Organisation, 2012). It is estimated that more than 3 million Australians are living with anxiety or depression (Beyond Blue, 2014). In young adults aged 16-24 – the age range that exemplifies most Human Movement students – 26.4 % experienced a mental health disorder in the last 12 months (Mission Australia, 2013), with suicide the biggest killer of young Australians (Mission Australia, 2013). Depression appears to be linked to reduction in memory (Burt, Zembar, & Niderehe, 1995), with a U.S. study suggesting a direct link between depression and reduced academic performance among college students (DeRoma, Leach, Leverett, & Patrick, 2009). In addition to the personal and social cost of depression, it is one of a raft of mental health issues that has a significant economic impact. It is estimated that the national recurrent expenditure on mental health related services reached $7.2 billion in 2011-12, and $854 million was spent on subsidised prescriptions for mental health in that year alone (Australian Institute of Health and Wellness, 2014). Experiences in the outdoors may well contribute to reduced depression and anxiety, and increased feelings of well-being (Townsend & Weerasuriya, 2010).

The purpose of this pilot study was to explore the affective and emotional experiences connected to the camp for a subset of students.

Method

Procedure

In 2014 a pilot study (Ethics no. 0000033502, University of South Australia) was conducted to commence a more formal examination of the possibility that the camp experience may contribute to well-being with an initial focus on changes to positive and negative affect. Participants were administered the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988), a simple 20 item questionnaire containing 10 items measuring positive affect (e.g., *excited, alert, enthusiastic*) and 10 items reflecting negative affect (e.g., *nervous, hostile, upset*), with participants responding to each on a 5-point scale. Mean scores

for positive and negative affect were calculated. Support has been found for the reliability and construct validity among the general adult population (Crawford & Henry, 2004).The PANAS questionnaire was chosen because of its established validity and reliability, as well as relationship to evaluation of depression and anxiety (Crawford & Henry, 2004). In addition to the PANAS questionnaire, student journals containing personal reflections just prior to, as well as during, the camp were reviewed for additional insight on student experiences relevant to affective response, and emotion and mood.

Student leaders on one of the camps were briefed on the project, and asked to provide the questionnaire to students on their first meeting with the students on day 1, and then at the conclusion of the camp on day 4. Two out of eight group leaders were able to collect both pre and post questionnaires, resulting in a convenience sample of 15 students for this initial pilot study [9 males (M_{age} = 19.67 years; *SD* = 1.66 years; range: 18-22 years) and 6 females (M_{age} = 20.50 years; *SD* = 1.22 years; range: 19-22 years)]. The other six student group leaders collected either pre or post questionnaires only, and this data was excluded.

Of the 15 participants in this pilot, 11 were first year students, 2 were in their second year and 2 were third year students. All participants experienced a similar camp program, although with two different student group leaders.

Analysis

Dependent samples *t*-tests examined whether there was a statistically significant mean difference between pre- and post-camp affect. Analysis was performed at the group level, as well as split by gender. Gender differences were explored with independent samples *t*-tests. Student journals were analysed using thematic analysis.

Findings

Positive and Negative Affect: Results from the PANAS

Means and standard deviations for pre- and post-camp positive and negative affect are presented in Table 1. Analysis of the data revealed that students reported significantly higher positive affect at the end of the camp (post-camp) compared to the start of the camp (pre-camp) [$t(14) = -2.771$, $p < .05$)]. No significant differences were found for negative affect [$t(14) = -0.251$, *n.s.*)].

When the sample was split by gender, positive affect was significantly higher at the end of camp compared to the beginning of camp for males [$t(8) = -2.553$, $p < .05$], but not females [$t(5) = -1.283$, *n.s.*]. There were no significant gender differences in pre- or post-camp scores for positive [pre: $t(13) = 0.194$, $p = .850$; post: $t(13) = 0.415$, $p = .685$] or negative affect [pre: $t(13) = 0.181$, $p = .859$; post: $t(13) = 0.347$, $p = .734$], or for change in positive or negative affect over the duration of the camp [ΔPA: $t(13) = 0.230$, $p = .822$; ΔNA: $t(13) = -0.127$, $p =$

.901]. However, given the lack of power due to sample size, these results need to be interpreted with caution.

Table 1. *Means and standard deviations for positive and negative affect pre- and post-camp.*

	M	*SD*	α	M_{male}	SD_{male}	α_{male}	M_{female}	SD_{female}	α_{female}
Positive affect (pre-camp)	30.07	6.31	.78	30.33	5.71	.71	29.67	7.69	.91
Positive affect (post-camp)	36.40	7.88	.74	37.11	7.44	.85	36.33	9.11	.91
Negative affect (pre-camp)	14.00	5.60	.86	14.22	7.00	.90	13.67	3.08	.80
Negative affect (post-camp)	14.47	5.59	.88	14.89	6.51	.92	13.83	4.36	.81

Content Analysis

General themes emerged around experiences of positive and negative affect, emotion, and mood, and also around self- and other-awareness.

Shifts in affect – experiences of positive and negative affect, emotion, and mood.

Much of the negative emotion prior to the camp surrounded students feeling nervous, anxious, and / or uncertain about the upcoming camp experience. Students acknowledged that the new experience presented some unknowns. Some students cited hoping they were adequately prepared, while others were concerned about getting along with others and fitting into the group. Two students acknowledged concerns about the camp structure. One hoped it would not be boring, and another hoped the food, people, content, activities, and weather would not present issues. A third student admitted to pre-conceived notions about the experience, thinking it would be like every other routine team building exercise. Another student acknowledged less apprehension about the camp itself, and more about what she was leaving behind. She had concerns about the missed opportunity to work and make money, as well as the care of her pets.

While the reservations at the start of the camp were evident, some students also identified positive elements, such as excitement for new experiences, building new relationships, and learning new skills.

One student acknowledged mixed emotions for certain upcoming activities. Rock climbing was cited as an exciting opportunity as well as one connected to nervousness and fear.

During the camp, there were a range of entries that suggested some experiences of negativity. Poor weather and fatigue were identified as factors that decreased mood and accompanied negative affect, but rest, food, better weather, and unique scenery reversed the trend. One student was distressed, feeling she played a "dysfunctional role" in her group due to her injury. Others expressed physical discomfort due to the demand of the activities. While many activities were appreciated by the students, some tasks were less enjoyed. For example, one student felt very "awkward" engaging in reflective activities. Additionally, some activities were challenging and novel, which resulted in some frustration. However, it was acknowledged that this emotion often accompanies the learning of new skills. Lastly, some students cited feeling stressed or disappointed when having to lead the group or when unsuccessful at a task.

While not every entry was positive, within the journals examples of positive affect, emotion, and mood vastly exceeded the negative, and in most cases, any initial negativity was replaced with a more positive reflection. In order to best capture the experiences of positive affect, emotion, and mood experienced by this subset of students during the camp, the following subthemes will be presented: enthusiasm and enjoyment, a sense of accomplishment, and support.

Enthusiasm and enjoyment

Much of the enthusiasm and enjoyment in the camp arose from the new experiences. Bushwalking, rock climbing, LNT, and orienteering presented new opportunities for many. Activities such as bush art, mindfulness, and yoga resulted in initial hesitation by some students, followed by an acknowledgement of the value and appreciation found in these activities. The ability to express oneself was connected to the bush art. Mindfulness and yoga, as well as the solo walk, provided the opportunity for personal time and space, as well as a sense of peace and relaxation. Many students acknowledged the usefulness of, and the personal enjoyment in, mindfulness. One student mentioned, unprovoked, that she would continue to practice it. Some students viewed weeding as an opportunity to spend time together as a group while also being proactive and giving back to the community. Learning about the environment and the impact that humans can make, as well as gaining more insight into Aboriginal culture, was enlightening to the students. All of these experiences provided an opportunity for learning new skills and information.

Another key source of enthusiasm was the environment. Being in nature and experiencing enjoyable scenery was commented on in a positive manner by many of the students. A few students credited the beautiful surroundings for making the challenging physical tasks, such as long walks, worth it in the end, and more enjoyable overall as they served as a distraction.

Finally, the tone of the writing in the students' journals also illustrated the positivity, with words such as "awesome", "epic", "great", "good", "amazing", "beneficial", "interesting", "brilliant", "exciting", and "insightful" being used to describe their experiences.

Accomplishment

A sense of accomplishment appeared to contribute greatly to the students' positive affective and emotional experiences. On a personal level, many students cited feeling proud, excited, and / or confident after reaching a goal, or accomplishing an activity such as a group task or rock-climbing. Often tasks were novel, and were initially a source of nervousness, anxiety, and / or fear. For others, there was discomfort in performing physical tasks. However, the nerves, fear, anxiety, and other discomforts were seen as "worth it" upon obtaining the end result. One student explained how it was "fun" for students to be "put out of [their] comfort zone", and that the challenge of pushing herself was rewarding. For another the "satisfaction of making it [completing the walk and seeing the views] was worth the physical discomfort". One student pointed out how he "exceeded [his] expectations" for himself, while others were impressed at their ability to stay positive in the face of challenges.

Some students also perceived pride at an overall group level, with their fellow students enjoying their shared accomplishments.

Support

Support was spoken of globally from two perspectives: the provision of support to other students, and the personal reception of support from others.

Support in the form of encouragement emerged as a major factor in the students' reflections. Students commented on endeavouring to be encouraging to others, as well as appreciating the encouragement that fellow group members provided to them. Encouragement was most commonly delivered through verbal comments, but also through cheering and non-verbal behaviours.

Support was provided by showing patience surrounding a limitation. For example, a student appreciated the support, care and patience extended to her due to her injury. Others commented on how they appreciated it when others pushed through an injury, along with how the group rallied to support a person in need. Some students identified the importance of promoting the comfort of others. For example, one student ensured no one was left behind during a walk, and another ensured everyone was happy with their role in the group. Another example of support that was appreciated was a student who offered to share food with another.

Support extended into a physical domain as well, with students helping each other to navigate difficult terrain, or assisting students with limited capacity due to injury. As part of support, the safety and wellbeing of others was upheld.

Overall, the perception of the formation of strong bonds within the groups was evident, with many students citing that they expected the friendships to continue beyond the duration of the camp. One student's entry strongly illustrates the intensity of the bond: "Today I really felt part of a family rather than a uni-thrown together group. They all showed amazing support towards me because of my injury. I did break down in tears only because of the family feeling in such a small amount of time." Going home presented mixed emotions for many, as, while they were excited for the comforts of home, they were going to miss their groupmates.

Self- and other-awareness

Awareness surrounding the self and others formed two subthemes: appreciation and recognition of the skill sets of the self and others, and appreciation and recognition of individual roles and the impact of the group. Both forms appeared to connect to student affective and emotional experiences, as well as mood.

Several students made entries that indicated self-awareness. A student explained that some tasks engaged in during the camp were more difficult than others, and that he was better at some activities than others. Another identified that there were people they worked better with than others. Some students identified personal strengths, as well as areas where he / she could improve. Many of these students cited progress in their personal development throughout the camp. In addition to acknowledging their impact on others through encouragement and other support, two students extended this idea to the environment, recognising the impact they have on their surroundings. Students also recognised and appreciated the skill sets and positive traits of others in their group.

A number of students showed awareness of the impact of roles and the group. Journal entries contained examples and acknowledgement of the importance of adoption of roles in building group cohesion. Norms were also important. Many students identified and strived to uphold positive behavioural norms, such as positivity and punctuality. Approaches seen as useful in developing cohesion, such as encouragement and humour, were further facilitated. Several students recognised how camp activities improved the functioning of a group (e.g., communication, decision making, teamwork), and cited progress in the group in terms of increased cohesion, communication, and comfort. The impact of a single person on a group, from both positive and negative perspectives, was acknowledged. Some entries contained examples of individual members not contributing as much as others, or contributing to a negative attitude. However, encouragement and support from the group was perceived to change the tone of many students. Reflection and attention to others was observed to increase cohesion. Taken together, the group seemed to have a collective sense of pride in their accomplishments during the camp.

Discussion

The findings from this pilot study indicate that students taking part in a 4-day first year camp reported significantly higher positive affect, and no significant difference in negative affect, after completing the camp compared to just prior to the experience. While the current design cannot imply causation, results from the PANAS suggest that the camp experience may have a positive impact on student affect, with the journal entries providing further support of the encouraging connection of the camp experience to positive affect, emotion, and mood. Further investigation into differences between male and female changes in affect may be warranted, with the possibility that increases in affect is higher for males than females. However, given the small sample size, further research is needed to confirm this finding. Although not all experiences of the camp were perceived as positive, the overall experience of this camp appeared to be constructive for participants in the study. Key themes emerged from content analysis of the journals suggesting that enthusiasm and enjoyment, accomplishment, support, and self and other awareness are factors facilitated by the camp and also connected to positive affect, emotion, and mood. Further study with a larger cohort is warranted, and may be enhanced by a more structured journal focussing on changes in positive and negative affect with more reflection on emotion and mood, follow up surveys and focus groups post-camp to investigate longer term effects, repeated pre-camp testing to establish a stronger baseline measure, and control groups to allow for exploration of causation. Despite some of the limitations of this pilot, the results suggest promise for the possibility of a similar camp for other tertiary and senior school programs to foster positive affect, emotion, and mood, promote positive, rewarding experiences and enhance well-being. Given the potential academic, social and economic benefit of improvements in well-being for such students, further investigation is warranted.

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International Council for Health, Physical Education, Recreation, Sport and Dance (ICHPER-SD): partnering ACHPER

Dr Timothy Lynch
Monash University

The Australian Council for Health, Physical Education and Recreation (ACHPER)'s National Strategy (2014-2016) lists four strategic priorities, which includes; 'to identify and promote broader ACHPER collaborations and partnerships'. The International Council for Health, Physical Education, Recreation, Sport and Dance (ICHPER-SD) shares vision and purpose with ACHPER and PENZ (Physical Education New Zealand), specifically with an international focus. Hence, ACHPER, PENZ and ICHPER-SD, working in collaboration, compliment and strengthen one another in promoting active and healthy living, as evidenced throughout history.

The umbrella international organisation ICHPER was first conceived in 1950, and officially founded in Rome, Italy in 1958. The theme of the first ICHPER world congress was 'Child Health and the School'. There have since been 36 world congresses, 32 regional congresses and numerous forums, conferences and symposia. The ICHPER name was extended to include 'Sport' and 'Dance' (ICHPER-SD) in Yokohama, Japan in 1993. The latest congress, the 56th ICHPER-SD Anniversary World Congress & Exposition was recently held in Bahrain (December, 2014). ACHPER was formally known as Australian Physical Education Association (APEA) and the name change was a direct result of the ICHPER-SD first and only world congress to be held in Oceania (Sydney, 1970). Some may remember the ICHPER-SD (Oceania) first Regional congress, held in Wellington, NZ in 2006. The title of the 1970 Sydney world congress was 'New Endeavours in Physical Education, Health Education and Recreation', it was of international significance, the best attended conference in the history of APEA and a milestone for 'Health, Physical Education and Recreation' (Kirk & Macdonald, 1998). Proud ACHPER member and ICHPER-SD Vice-President (representing Oceania region), Dr. Timothy Lynch, shares the strong history, direction and opportunity for working collaboratively with one of the oldest, largest and most prestigious international umbrella organisations.

Introduction

The Australian Council for Health, Physical Education and Recreation (ACHPER) held the 28th biennial International Conference in Melbourne in 2013. The conference theme was 'A Defining Time' and examined the Australian Curriculum and the significance of Health and Physical Education (HPE) in the lives of young Australians. Internationally renowned HPE academic, Professor David Kirk from the University of Bedfordshire (UK), presented the 22nd Fritz Duras Memorial Lecture at the University of Melbourne. The title of the keynote

presentation was ‘A defining time for physical education futures? Exploring the legacy of Fritz Duras.’ Kirk opened the memorial lecture by challenging HPE educators:

> It has been my conviction for sometime and something that I’ve argued in public that most of us in health and physical education do not know the history of our field particularly well and this places us in a very precarious situation in terms of a readiness to face change.

This lecture set a platform for the history of HPE within the Australian context by exploring the ‘Father of PE’, Fritz Duras, and his contribution during the 1930s through to the 1950s. As Kirk indicated metaphorically, while Fritz (the father) made a significant contribution “he was greatly assisted by the other family members”. Kirk encouraged “We must all be involved collectively and with one shared purpose” (2013).

During this same conference a feature forum involving a panel of Health and Physical Education (HPE) curriculum experts was assembled to discuss the emergence of the national HPE curriculum. Kirk used this feature forum to argue the importance of history in HPE.

> So here’s the thing that bothers me. How come our collective memories aren’t following what’s going on anymore? We’ve published on this, so there’s been quite a bit of stuff out there in journals… I don’t know how others feel about this but it frustrates the hell out of me! Because I’m a part-time historian as well, I tend to look to the past for lessons about the present and where we might be heading in the future. (Hickey et al., 2014, p. 184).

This paper uses the themes identified through Kirk’s recommendations; knowing HPE history, working collectively, present moment, shared purpose, and optimising the future, in promoting HPE organisational collaboration, relevant to the 29th ACHPER International Conference theme of ‘Values into Action: A Brighter Future’.

ICHPER-SD: A strong and proud history

The International Council for Health, Physical Education, Recreation, Sport and Dance (ICHPER-SD) has a strong affiliation with the Society of Health and Physical Educators (SHAPE) America. ICHPER was initiated by an idea first conceived in 1950 by the Board of the American Alliance for Health, Physical Education, and Recreation (AAHPER). AAHPER had its name supplemented with ‘Dance’ to become AAHPERD and in 2014 the Board became SHAPE America. This was the 7th name change of the AAPERD since its founding in 1885 as the Association for the Advancement of Physical Education (AAPE) (Yang, 2015). In March, this year in Seattle, Washington, USA the 130th Annual SHAPE America Convention and Exposition was held with over 7000 participants and approximately 400 presentations/ programs. The ICHPER-SD Forum was held in conjunction with this SHAPE

America Convention. ICHPER was founded in 1958 in Rome, Italy by the world's leading professionals in Health, Physical Education and Recreation (HPER) and since this time ICHPER-SD headquarters have been shared with AAHPER[D]/ SHAPE America in Reston, Virginia.

ICHPER-SD shares vision and purpose with organisations such as SHAPE America, ACHPER and PENZ (Physical Education New Zealand), but specifically has an international focus.

> The ultimate purpose of ICHPER is to pursue and exchange scholarly knowledge amongst individuals and appropriate groups in the fields of health, physical education and recreation, focusing primarily on the process of teaching and learning, curriculum and programme development, the administration and organisation of programmes, and the effects of physical activities on the holistic well-being of children, young people and adults, and on their emotional, social and spiritual development. (Kane, 1989, p. 107).

ICHPER-SD's mission is to share and optimise internationally, 'quality' HPERSD; it achieves this by advocating HPERSD in schools and communities and by uniting Health and Physical Educators from around the world. ICHPER-SD involves 208 countries worldwide, and has served and worked with professionals and organisations in over 168 countries. ICHPER-SD "has also directed efforts towards developing countries in order to initiate and strengthen programmes and leadership within the schools and higher education institutions" (Kane, 1989, p. 107).

ICHPER-SD was established so that individuals in the fields of HPER:

> could work together on an international basis. These individuals were primarily teachers and administrators who wanted an association which was not representative of any one country, or system, or one method of physical education. They also wanted to explore and discuss the broad fields of physical education, health and recreation and to include many activities in their programs. They wished to know what other countries were doing in these various areas of sport, athletics, dance, gymnastics, aquatics and outing activities. (Hircock, 1988, p. 73).

Since 1958 to this very day ICHPER has been closely affiliated with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) as a Non-Governmental Organisation (NGO). Furthermore ICHPER-SD is registered in the USA as a non-profit [US 501(c)(3) status] charitable and educational organisation. Initially ICHPER was a member of the World Confederation of Organisations of the Teaching Profession (WCOTP) which assisted with organising conferences and translation services (Hircock, 1988). This relationship was significant as "WCOTP had original nongovernmental 'A' status with the

United Nations Economic and Social Council (ECOSOC) and UNESCO. As an international member of WCOTP, ICHPER shared this relationship and received advice, encouragement and support from these UN agencies." (Hircock, 1988, p. 94). It was in May 1984, when ICHPER as an independent organisation was granted nongovernmental class 'A' consultative status by UNESCO (Kane, 1989).

Working collaboratively with UNESCO, ICHPER-SD has produced many reports and publications. 'Physical Education and Games' and 'Teacher Training for Physical Education' were completed in 1962 and published in 1963. ICHPER 'International Questionnaire (Part II and III) on the Status of Teachers of Physical Education (Part II)' and 'Teacher Training for Physical Education' was published in 1969. In a national-level effort for implementation of the outcomes of the International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport (MINEPS) (first held at UNESCO Headquarters in Paris in 1976), a National Conference was organised and held in Washington, D.C., in November, 1977 (Yang, 2004).

> Participants were the United States Department of Health, Education, and Welfare, the U.S. Department of State, the President's Council on Physical Fitness and Sports, ICHPER·SD, the American Alliance for Health, Physical Education and Recreation (AAHPER) and its 3 constituent associations and 10 cooperating organizations. They all worked together in cooperation with UNESCO/CIGEPS [Intergovernmental Committee for Physical Education and Sport] for the Conference with the theme, "the Role of Physical Education and Sport in the Education of Youth in the Context of Lifelong Education" (Report, U.S. Department of Health, Education and Welfare, 1978). In 1978, through the working session of CIGEPS (June 1977 and May 1978) with other relevant organizations like ICHPER·SD, the UNESCO General Conference adopted the International Charter of Physical Education and Sport in response to the lack of standards and institutions for physical education and sport at the international level. At that time, over twenty years ago, the International Charter was established to counteract the already identified problem of the trend of negative attitudes to the status of physical education and sport in school systems. (Yang, 2004, p. 1).

In 1981 ICHPER-SD completed 'National Policies and Practices Concerning the Role of Physical Education and Sport in the Education of Youth' (UNESCO Contract No. 207505) which was published by the International Council of Sport Science and Physical Education (ICSSPE). (Yang, 2004). Other contracts with UNESCO include: 'Suggested Guidelines for Conducting a National Study for Physical Education and Sport (Contract No. 516.344); 'Final Report of the UNESCO International Symposium on Physical Education and Sport Programmes for the Physically and Mentally Handicapped' (Contract No. 518.015); 'The Role of Girls and Women in Developing Physical Education and Sports Programmes' (Contract No. 516.436); Planning Inexpensive Facilities and Equipment for Physical

Education, Sport and Recreation Programmes (Contract No. 516.437); Health, Physical Education and Fitness for Older Women (Contract No. 108.046.4); and Educational Innovations in Physical Education and Sport (Contract No. 207.546) (Kane, 1989).

In 1988 UNESCO organised MINEPS II (Moscow) and in 1999 MINEPS III in Punta del Este, Uruguay where the CIGEPS of UNESCO and its Physical Education and Sport Unit under the Department of Education for a Culture of Peace, the Permanent Consultative Council (CCP) to CIGEPS which ICHPER-SD was a member (alongside International Olympic Committee (IOC), World Health Organisation (WHO), ICSSPE, other invited organisations and UNESCO staff) drafted the Declaration and Recommendations and presented them to the assembly of MINEPS III. "After discussion and debate lasting over two days, MINEPS III concluded with adopting the Declaration and Recommendations." (Yang, 2004, p. 2).

The largest joint project ICHPER-SD has completed in collaboration with UNESCO was the three international standards (Contract No. 105051.0): (1) International Standards for Physical Education and Sport for School Children; (2) Global Standards for Professional Preparation of Physical Educators; and (3) A Global Vision for School Physical Education. ICHPER-SD was also to develop a World Database of existing Physical Education and Sport Institutions, Universities, Training Centres, Research Centres, and Specialised Physical Education and Sport Schools.

> The projects were successfully completed, and all relevant documents (e.g., 3 International Standards in English text) were duly submitted to UNESCO's Department of Education for a Culture of Peace, the signatory on behalf of the Director General of UNESCO on April 30, 2001. UNESCO translated the original English texts into French and Spanish, and these Standards in 3 languages (English, French, and Spanish) were presented and used as a part of the main working documents for the meeting of the Round Table of Ministers and Senior Officials Responsible for Physical Education and Sport held at UNESCO's Headquarters from January 9 - 10, 2003, in Paris… In March 2004, UNESCO through its Division for the Promotion of Quality Education informed the Office of the ICHPER·SD President that the Standards have been approved and adopted by UNESCO/CIGEPS, and thus they are an official "authoritative texts." (Yang, 2004, p. 3).

ICHPER-SD has held 36 World Congresses, 32 regional congresses and numerous forums, conferences and symposia. The theme of the first ICHPER world congress was 'Child Health and the School'. The ICHPER name was extended to include 'Sport' and 'Dance' (ICHPER-SD) in Yokohama, Japan at the 1993 world congress. The latest congress, the 56th ICHPER-SD Anniversary World Congress & Exposition was recently held in Bahrain (December, 2014) with the theme 'Towards Building a New Sport System' (Table 1).

Table 1 ICHPER-SD Congresses & World Expositions

Year	City/ Country	Theme
1958	Rome, Italy	Child Health and the School
1959	Washington DC, USA	Child Health and the School
1960	Amsterdam, Netherlands	Physical Education's contribution to Education
1961	New Delhi, India	The teaching of responsibility through PE and recreation
1962	Stockholm, Sweden	Health, Physical Education, Recreation (HPER) in a technical age
1963	Rio de Janeiro, Brazil	Quality teaching in HPER
1964	Paris, France	HPER: A means for increasing international understanding
1965	Addis Ababa, Ethiopia	Equal opportunity through education
1966	Seoul, Korea	Educational planning in HPER
1967	Vancouver, Canada	Decade of progress
1968	Dublin, Ireland	Developing leadership in HPER
1969	Abidjan, Ivory Coast	Improving the teaching of HPER
1970	Sydney, Australia	New endeavours in HPER
1971	Kingston, Jamaica	New directions for the 1970s
1972	London, England	The Child and Teacher in health
1973	Sanur Denpasar, Indonesia	HPER in national development
1975	Rotterdam, Netherlands	HPER in the near future
1977	Mexico City, Mexico	HPER for everyone
1979	Kiel, West Germany	Movement, Health and Recreation Education through Physical Activity
1981	Manila, Philippines	Towards quality of life through HPER
1983	Netanya, Israel	HPER & Dance in perspective
1985	London, England	Education for living: The contributions of HPER
1987	Vancouver, Canada	Towards the 21st century
1989	Frostburg, Maryland, USA	Critical issues in HPER: A global analysis
1991	Limerick, Ireland	Looking ahead to the 21st century
1993	Yokohama, Japan	Creating active lifestyles: HPER in Lifelong learning
1995	Gainesville, Florida, USA	To explore scientific & pragmatic aspects of HPERSD
1997	Seoul, Korea	Revitalisation of humanity & better environment
1999	Cairo, Egypt	Developing strategies of international cooperation in promotion of HPERSD for the new millennium
2002	Taipei, Taiwan	Pursuit of wellness in the new millennium: Contributions of HPERSD
2005	Istanbul, Turkey	New vision, new mission, new strategies: HPERSD as an integral part of the lifelong quality education of the whole person
2008	Kanoya, Kagoshima, Japan	Local & global aspects of the promotion of health, sports & physical activity education: A renewed commitment for the second 50 years
2010	Doha, Qatar	Quality physical activity education and science for all: A gateway to health and Olympic calibre performance
2011	Cairo, Egypt	Sport & exercise for health, fitness & wellness
2013	Istanbul, Turkey	Total fitness & wellness: HPERSD as an integral part of the positive improvement for individuals
2014	Manama, Bahrain	Towards building a new sport system

ICHPER-SD comprises of eight regions which the Bylaws Article V Section 2 clarifies are sub-structures and not independent organisation entities. These include Africa, Asia, Caribbean, Europe, Latin America, Middle East, North America and Oceania. Australia, New Zealand and the Pacific Islands all sit within the Oceania region. ICHPER-SD has six divisions; Health, Physical Education, Recreation and Leisure, Sport and the Olympic Movement, Dance, and Girls and Women in Sport and PE. Within the divisions, Commissions are programming interest areas. As can be seen from ICHPER-SD's history and partnerships it is one of the oldest and most influential international academic HPERSD organisations.

ACHPER

The Australian Council for Health, Physical Education and Recreation is this year celebrating its 60th anniversary as a national organisation, beginning around the same time as ICHPER. ACHPER and ICHPER-SD have connections and partnerships throughout history. ACHPER was formally known as Australian Physical Education Association (APEA) and the name change was a direct result of the ICHPER-SD first and only world congress to be held in Oceania (Sydney, 1970). The title of the 1970 Sydney world congress was 'New Endeavours in Physical Education, Health Education and Recreation', it was of international significance, the best attended conference in the history of APEA and a milestone for 'Health, Physical Education and Recreation' (Kirk & Macdonald, 1998).

> The Annual Meeting of the National Council of the Australian Physical Education Association (APEA) was held on the 1st August 1970 during the joint ICHPER-APEA International Congress in Sydney. Motion 4 of the meeting requested 'that the National Association initiate the process of changing the name of the association to include the three disciplines Physical Education, Health Education and Recreation and thus widen the sphere upon which the Australian Physical Education Association bears influence' ...
>
> There was no doubt that the ICHPER-APEA International Congress provided some significant impetus to the movement to change the name of the APEA. In her report on the Conference, Elaine Chesworth claimed that it was 'in every way a milestone in the history of health, physical education and recreation in Australia'. The Conference was the best attended in the history of the APEA and had provided a significant boost to membership. The title of the Conference, 'New Endeavours in Physical Education, Health Education and Recreation', suggests that the three areas of focus were already on their way to becoming increasingly visible within APEA (now ACHPER). According to Chesworth, the Congress indicated that 'we in Australia are now part of the international scene', and it may have been this feeling of connectedness

internationally through ICHPER along with the great success of the conference that led to the acceptance of an Australian version of this name.

Elaine Murphy (ACHPER National President 1988-1993 and ICHPER-SD Vice President -Oceania) described this influence "Australians coming back from overseas, they were saying that associations over there are including these other streams (in health and recreation), and our description of physical education is just not adequate when health is such a large component (of what we do)... they wanted these words included otherwise they felt that physical education was too narrow." (Kirk & Macdonald, 1998, pp. 6-7).

This excerpt evidences the strong history ICHPER-SD and ACHPER have had. Elaine Murphy was President of both organisations/ regions. In 2006 the first ICHPER-SD (Oceania) Regional congress, held in Wellington, NZ, further developed PENZ, ACHPER and ICHPER-SD relations.

Conclusion

The Australian Council for Health, Physical Education and Recreation (ACHPER) National Strategy (2014-2016) lists four strategic priorities, which includes; 'to identify and promote broader ACHPER collaborations and partnerships'. Kirk's recommendations; knowing HPE history, working collectively, present moment, shared purpose, and optimising the future, are relevant to the 29th ACHPER International Conference theme of 'Values into Action: A Brighter Future'. It is proposed that stronger partnerships between ICHPER-SD and ACHPER can enable a brighter future through international connections. Australia hosting a second world congress and exposition could be a reality and possibly as successful as Sydney 1970 Congress; 'New Endeavours in HPER', however as Kirk asserts, "We must all be involved collectively and with one shared purpose."

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What we know, what we do and *what we should do*: The delivery of health education in lower secondary government schools in WA

Donna Barwood
Edith Cowan University

Introduction

Australian health data indicates that childhood is a significant time for young Australians to develop health and well-being issues (Australian Institute of Health and Welfare, 2008, 2011, 2012). Concurrently, health advocates herald in-school delivery of skills-based participatory health education (HE) as making significant contributions to developing behaviour change and supporting health-enhancing dispositions in children and young people (World Health Organization, 2003).

In Western Australia (WA), skills-based participatory HE is characterised by linking knowledge and understandings of what it means to be safer, healthier and more physically active to skills that action these states. Skills-based is a preferred approach to teaching and learning in the Health and Physical Education Learning Area (HPE LA) and at the time of this study, was supported through education legislated in the *Curriculum Framework* (Western Australia. Curriculum Council, 1998).

This paper presents the findings of a study that assimilated the delivery of a skills-based participatory approach with what teachers should know and do in order to investigate the context of government lower secondary schools in WA supporting healthy citizenry. Specifically, it discusses the qualifications and training of the teachers delivering HE, the curriculum time allocated to the HPE LA and the significance of a motivation to teach HE in the delivery of skills-based participatory HE. Importantly, this paper exposes the challenges of the HPE LA in government lower secondary schools to support and strengthen healthy citizenry in young Western Australians when 50 per cent of the teachers delivering one of its subjects are neither qualified nor trained in the learning area and when inequity exists in the learning time attributed to the subjects representing Health and Physical Education (HPE). Furthermore, it presents the view that in lower secondary government schools in WA there is a disjunction between *what we know*, *what we do* and *what we should do* with regard to the delivery of HE. The following section provides a brief background to the topic.

Background

In 2009, the Australian Government committed to improving teacher quality in Australian schools, with work commencing on the establishment of professional standards for teachers (Australian Institute for Teaching and School Leadership [AITSL], 2011). In recognising that world-class education is dependent on the quality of the teachers delivering

education in schools, the standards aimed to define what Australian teachers should know and do. In 2010, the standards were endorsed as a public statement of educational reform to enhance teacher quality and support the *Melbourne Declaration on Education Goals for Young Australians* by promoting equity and excellence in Australian schools (Ministerial Council for Education, 2008).

In WA, schools domesticate their representation of the HPE LA to reflect school priorities and needs, with the *Curriculum Framework* allowing schools flexibility over the interpretation, timetabling, shape and delivery of HPE. Essentially, the framework mandates the educational outcomes and not the subjects through which HPE is commonly delivered. In 2012, most government lower secondary schools in WA delivered these outcomes through the separate subjects of physical education (PE) and HE, with outdoor education offered as an elective subject. This representation occurred despite a mandate in the curriculum for the HPE LA in WA to exist as integrated curriculum.

Additionally, this representation was utilised by some government schools to accommodate the *Curriculum and Assessment Reporting Policy* (the CAR policy) (Western Australia. Department of Education, 2010). The CAR policy legislates that government school students in WA receive two hours of physical activity per school week within the school curriculum, and although it does not specify HPE as *physical activity,* some government schools see this learning time as the natural place to enact the policy. The impact of the CAR policy is significant as the findings of this study show that the three hours of learning time allocated to the HPE LA in most WA government lower secondary schools is not equally distributed between the two subjects that deliver the learning area's educational outcomes.

In WA, previous research had identified quantity and quality as criteria for HE to develop healthy living (Shilton, McBride, Cameron, & Hall, 1995). This research specifically collected data on the curriculum time allocated to PE and HE but like other similar studies, while it noted issues with the qualifications of the teachers delivering HE, it did not confirm the qualifications through datum. This focus is critical to this study because further research has identified the teacher as the most significant school-based influence to enhance healthy citizenry (Beckett, 1990; Ridge et al., 2002; Ryan, Rossi, lisahunter, Macdonald, & McCuaig, 2012).

Drawing on the findings of this earlier WA study and this study, this paper addresses the gap in literature pertaining to the qualifications and preparation of teachers delivering HE.

Methodology and significant results

This study utilised a mixed methods methodology to collect quantitative data from 75 teachers in an online and paper survey and qualitative data from nine teachers who

participated in semi-structured interviews. Analysis of the quantitative data was performed using SPSS (21) and summarised using simple frequency distributions, percentages and tables and graphs. Central tendency and variations of scores were summarised using means and standard deviation. Artichoke computer software (Fetherston, 2011) was used to code the qualitative interview data through a systematic, exhaustive and iterative process. This program was selected in preference to the capabilities of QSR International's NVivo 10 software for analysing video data because Artichoke was specifically designed for educational purposes. Additionally, the program's creator aided in this study and his availability, knowledge and experiences outweighed the benefits of using other software.

Analysis of quantitative data determined the extent to which 49 lower secondary government schools in WA timetabled HE as a separate subject, specifically identifying the curriculum time allocated to HE and the teachers timetabled to deliver the subject. Analysis of qualitative data revealed the perspectives of a group of HE teachers and was combined with the quantitative data to produce contextual insight into the representation and delivery of HE in particular WA schools.

Discussion of findings

This study found a gap between *what we know, what we do* and *what we should do* regarding the representation of HE in lower secondary government schools in WA. Specifically, it found:

1. inconsistencies in the qualifications and training of the teachers delivering HE;
2. inequity in the division of curriculum time allocated to PE and HE as a representation of the HPE LA; and
3. the significance of a motivation to teach HE in the delivery of skills-based participatory HE.

Finding One: An idiosyncratic delivery

This study found four combinations of teacher qualifications and training distinctive to the teachers timetabled to deliver HE. Crucially, this new knowledge provides criteria to evaluate the deployment of teachers to HE and places into perspective the extent to which unqualified and untrained teachers were delivering the subject in WA in 2012.

The first type of teacher (53.3%) found to be delivering HE was a qualified HPE LA teacher, trained in HE pedagogy. The second type of teacher (25.3%) may have gained a degree in sports science or similar, then completed further study to qualify as a teacher. However, at worst this teacher was a qualified HPE LA teacher who had not studied HE pedagogy as a compulsory component of the qualification. Significantly, one third of the qualified HPE LA teachers were a type two teacher. The third type of HE teacher (4%) was

unqualified in the HPE LA but trained in HE pedagogy. For example, this teacher may have completed a degree in the preparation of food and technology, and may, as a component of that degree, be trained in health-related pedagogy. Finally, the last type of teacher (17.3%) timetabled to deliver HE was unqualified in the HPE LA and untrained in the pedagogy of HE.

Within the context of HE, this idiosyncratic delivery brings into question the achievement of the AITSL's standards and contradicts the Australian Government's quest for quality teaching. Additionally, because schools and universities have a specific "responsibility to work together to support high-quality teaching and school leadership" such inconsistency between the teachers delivering HE has the potential to undermine the promotion of equity and excellence in educational outcomes for all young Australians (Ministerial Council for Education, 2008, p. 11). This finding confirms a link between the timetabled delivery of HE in WA schools and perceived inadequacies in some university courses that prepare HPE LA teacher(s). This finding also exposes the organisational ambivalence functioning in government schools in WA (McBride, Cameron, Midford, & James, 1995).

Finding Two: Curriculum capacity to effect healthy citizenry

It is evident that the curriculum time attributed to HE as a separate subject in the government schools studied has declined since 1987, compared to a growth in curriculum time for PE (see Figure 1). Additionally, there was variance apparent in the HE curriculum time across schools, but for most schools HE was delivered for approximately one hour per timetable cycle. This represented only one third of the available three hours of HPE LA curriculum time and was without a governing policy. This finding contributes new contextual insight – firstly into the issues of contested curriculum time associated with the integration of the HPE LA in Australia (Harrison & Leahy, 2006), and secondly, into the policies and practices in some WA schools, both of which risk undermining the HPE LA's capacity to effect healthy citizenry.

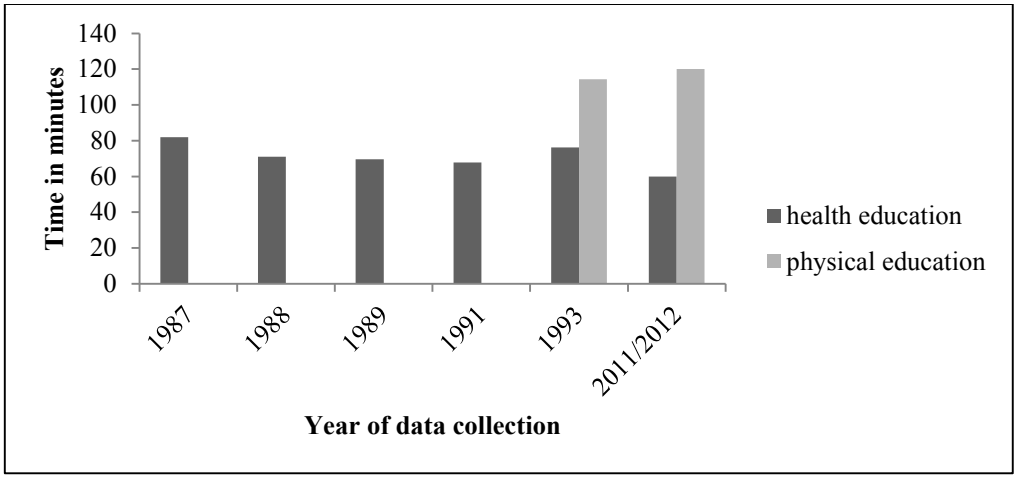

Figure 1. Average time per week allocated to HE and PE in lower secondary government schools in WA, 1987–2011/12 (adapted from Shilton et al., 1995, p. 25).

Figure 1 demonstrates that integration of the HPE LA in WA has been a union that promotes PE over HE, offering support to Tinning (2004), who explored the tension between PE and HE within the structure of an integrated HPE. This finding highlights the probability of inequity and bias in the representation of HE in the HPE LA curriculum content and exposes a contravention of the explicit goal of equity and excellence in the delivery of HPE, as outlined in the *Melbourne Declaration on Educational Goals for Young Australians*.

Finding Three: An ideal delivery

According to the participants in this study, an ideal delivery of HE is by qualified and trained teachers of the HPE LA (type one), who possess the motivation to teach the subject, and who use skills-based participatory pedagogy. The participants reported incidences of type two, type three and type four teachers ignoring skills-based pedagogy when delivering HE and refusing to teach the subject's important but controversial content. This view is consistent with the literature examined, which raised concerns about unqualified and untrained teachers delivering HE. The literature argued that these teachers often deviate from a preferred approach to incorrectly or poorly represent the content (Fetro, 2010; Paakkari, Tynjala, & Kannas, 2010; Peterson, Cooper, & Laird, 2001). More specifically, these teachers often overlook a skills-based approach in favour of a didactic delivery of health facts because they feel more comfortable with this type of delivery. This method of teaching exists despite research stipulating that the delivery of facts and health information on its own is not enough to effect behavioural change (Beckett, 2006; Black, Furney, Graf, & Nolte, 2010; Kirby et al., 1994; Kolbe L, 2005; McCuaig, 2006).

Irrespective of the prevailing view amongst the participants, the study found that a skills-based participatory pedagogical approach was the preferred option for 99 per cent of the study's participants, with 84 per cent of them stating that they often used a skills-based

participatory pedagogical approach to deliver HE. Further, the majority of the participants stated that they enjoyed delivering HE and considered themselves satisfied, competent and confident HE teachers.

Rather than contradicting Finding One, Finding Three demonstrates the critical importance of the two findings by suggesting that in the context studied, teacher motivation was even more significant to the delivery of HE than qualifications and training because all of the untrained teachers reported delivering a skills-based approach to HE. Further, suggesting that teacher enjoyment affects the delivery of a skills-based participatory pedagogical approach in the classroom.

Finding One and Finding Three together provide evidence of the overarching requirement needed for successful teaching of HE – enjoyment, competence and confidence – however, this combination needs to be explored further so that its significance can be learnt, and a better representation of HE evolve.

Recommendations

This study found that in many instances the preparation for teachers delivering HE in lower secondary government schools in WA could be significantly improved. To counteract the mismatch between *what we know, what we do* and *what we should do* regarding this delivery, this study identified four recommendations, to position schools as a health-strengthening resource and two recommendations, for universities to develop the best teachers and to support all schools to be high performing. As a group, these recommendations:

- recognise the context and administrative demands on teachers who work in government schools in WA;
- embrace the AITSL's standards for teachers; and
- support the Melbourne Declaration on Educational Goals for Young Australians.

Recommendations for schools

The four recommendations for schools aim to ensure the potential of the curriculum space of the HPE LA to support a safer, healthier and more active citizenry.

- Timetable teachers who want to deliver HE to HE classes, so that teachers who feel confident, comfortable and enjoy delivering the subject's content will teach this essential information.
- Using professional learning and development, adequately prepare HPE LA teachers who want to deliver HE, and who are untrained in HE pedagogies.

- Using professional learning and development, adequately prepare non-HPE LA teachers who want to deliver HE, and who are untrained in HE pedagogies.
- Allocate equal status within the HPE LA to HE and PE though the division of equal curriculum time.

Recommendations for universities

The two recommendations for the universities in WA that prepare pre-service teachers aim to ensure that pre-service teachers understand the significance of skills-based participatory HE and its contributions to developing healthy citizenry.

- Appropriately prepare pre-service HPE LA teachers with all mandatory aspects of the legislated WA curriculum.
- Appropriately prepare pre-service non-HPE LA teachers to deliver HE.

Conclusion

This study positions schools as a key site to support health-enhancing action in young people. It affirms that schools play an increasingly significant role in determining the health of our nation. This study also positions the HPE LA as a health-strengthening resource with the capacity to effect safer, healthier and more physically active young people. However, to ensure that all young people receive quality HE as defined by AITSL, this study asserts that *all* schools must realise the potential afforded through curriculum space of the HPE LA to effect healthy citizenry.

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Effects of traditional dance curriculum and a pre-packaged rhythmic and expressive movement package on confidence and motivation of undergraduate physical education students to teach rhythmic and expressive movement

Sharna Spittle and Associate Professor Michael Spittle
College of Sport and Exercise Science, Victoria University, Melbourne

Rhythmic and expressive movement is one physical education curriculum area where pre-service teachers may experience lower levels of confidence and motivation. This study explored the influence of a standard dance curriculum and pre-packed rhythmic and expressive movement program on confidence and motivation to teach rhythmic and expressive movement. Undergraduate physical education students (n=101, male n=35, female n=66) with a mean age of 20.65 years (SD=2.76) completed a pre- and post-test measure of confidence and motivation to teach physical education (Confidence and Motivation to Teach Physical Education Questionnaire [CMTPE]) before and after completing 2 one-hour sessions of a standard dance curriculum condition (n=49) or pre-packaged rhythmic and expressive movement program condition (n=52). Confidence and motivation scores appeared moderate to high but were lower for confidence in rhythmic and expressive movement as well as for the motivation subscales of guilt, professional expectations, and motivation. All confidence and motivation subscales as well as confidence in rhythmic and expressive movement and perceptions of pre-packaged program showed significant increases in scores from pre-test to post-test ($p<.05$), with most subscales not showing a time x condition interaction ($p>.05$), indicating that the pattern of change across time was not different for condition. There was a significant time x condition interaction for motivation ($p<.05$) with motivation increasing more for the pre-packaged program condition than for the dance curriculum condition. Thus, the programs both improved confidence and motivation and confidence in rhythmic and expressive movement but did not produce different effects. Given the lower initial confidence in rhythmic and expressive movement before the programs, it appears that training in rhythmic and expressive movement is important in physical education courses. Researchers and practitioners should continue to explore approaches to encourage physical education pre-service teachers to engage with rhythmic and expressive movement content.

Introduction

Rhythmic and expressive movement, such as dance and gymnastics, is part of the primary and secondary physical education curriculum (ACARA, 2015). However, instructing it can be challenging for preservice teachers. Preservice teachers often have limited background in, as well as potentially negative beliefs about, rhythmic and expressive movement (Jacobs, 2008; Russell-Bowie, 2010; 2013). For some, teaching rhythmic and

expressive movement activities is a different experience from that they usually confront because it requires a more creative and aesthetic environment (MacLean, 2007), and this can be met with resistance from those with limited experience (Gard, 2003).

Curriculum in physical education is defined by the way that it is practiced, not by the definition that is provided to it by curriculum authorities (Penney, 2013). Currently physical education in schools is characterised by a focus on the practice of sport specific skills and participation in games and sports (Kirk & O'Donovan, 2008; MacPhail, 2008). Less time is devoted to movement experiences such as aquatics, and rhythmic and expressive movements (Kirk & O'Donovan, 2008). This, obviously, is not providing students with the full range of movement opportunities expected within physical education. This also has potential circular effects in that preservice teachers coming through schools will find themselves with a lack of knowledge and skills in rhythmic and expressive movement when they come to a higher education setting (Gard, 2003). Being required to do activities outside of their expectations of what physical education is may be confronting, especially if students have limited experience of these activities. Reduced exposure to rhythmic and expressive movement in preservice teachers' apprenticeship of observation may also influence attitudes and beliefs regarding teaching rhythmic and expressive movement For example, Spittle and Spittle (2014) found that dance and gymnastics were two areas of the physical education curriculum that tertiary physical education students rated as of lower importance. This lower rating of dance and gymnastics could impact on motivation and confidence to deliver these content areas of the PE curriculum (MacLean, 2007).

One approach to encourage the delivery of rhythmic and expressive movement in physical education is to provide pre-packaged programs that prepare all the curriculum materials and activities for the instructor. This may make the task of delivering experiences in rhythmic and expressive movement less confronting because less background knowledge and skills is required to develop and plan movement opportunities.

Aims of the study

The aims of this study were to determine the confidence and motivation of university physical education students in teaching rhythmic and expressive movement and explore the influence of a standard dance curriculum and a pre-packaged rhythmic and expressive movement program on confidence and motivation to teach rhythmic and expressive movement.

Method

Participants

Students enrolled in a Bachelor of Education (P-12) degree specialising in Primary Physical Education and a Bachelor of Applied Science (Physical Education) degree were invited to participate. Students completed the standard dance curriculum and pre-packaged rhythmic and expressive movement programs during scheduled units of study. A total of 101 students with a mean age of 20.65 years (SD=2.76) provided data, comprising 35 male (34.7%) and 66 female (65.3%) participants from the Bachelor of Education (P-12) (n = 68) and Bachelor of Applied Science (Physical Education) (n=33). The standard dance curriculum condition consisted of 49 (18 male, 31 female) participants with a mean age of 20.63 years (SD=2.82) and pre-packaged rhythmic and expressive movement program condition consisted of 52 (17 male, 35 female) participants with a mean age of 20.67 years (SD=2.73). Most participants (n=71, standard condition = 37, pre-packaged condition = 34) indicated no previous participation in any form of dance or rhythmic and expressive movement. Nearly all participants (n=94, standard condition = 46, pre-packaged condition = 48) also indicated no previous training in dance or rhythmic and expressive movement.

Measures

A questionnaire was used to measure demographic information and confidence and motivation to teach physical education and confidence to teach rhythmic and expressive movement specifically. Students also indicated their perceptions of pre-packaged curriculum programs in rhythmic and expressive movement. The demographics form contained questions, which asked participants to indicate their gender, age, course, current year level, and previous experience and training in rhythmic and expressive movement related activities.

The confidence and motivation to teach primary physical education questionnaire (CMTPPE) (Spittle, Watt, & Spittle, 2011) consisted of one section addressing confidence and one section addressing motivation. Each section of the questionnaire was developed independently. The questionnaire incorporates a 6 point Likert Scale as the response technique ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

The confidence section consists of 24 Likert scale style questions relating to two different sub scales of confidence (management and planning and implementation) which address the global question 'I am confident in my ability to ..'. There are 15 items on the management and planning subscale and 9 items in the implementation subscale. Both subscales have previously displayed adequate internal consistency with Cronbach's alpha coefficients of .96 for management and planning and .89 for implementation (Spittle, Watt, & Spittle, 2011). In the current study, the confidence subscales were all above .80 at both pre-test and post-test (Table 1).

The motivation section was an adaptation of the pre-existing framework of the Sport Motivation Scale (SMS) (Pelleitier et al., 1995) and the Academic Motivation Scale (AMS) (Vallerand et al., 1992). There are 28 Likert scale style questions relating to five different sub

scales of motivation, which address the global question, which was adapted to rhythmic and expressive movement for this study , 'Why would you teach rhythmic and expressive movement in physical education". The six subscales measure capability (3items), guilt (2 items), self-satisfaction (7 items), student outcomes (4 items), professional expectations (3 items), and amotivation (4 items) (Spittle, Watt, & Spittle, 2011). The subscales have previously displayed adequate internal consistency with Cronbach's alpha values ranging from .75 to .91. In the current study, the motivation subscales were generally above .70 (Table 1), the internal consistency for professional expectations was lower at .66 pre-test and .54 at post-test and the post-test internal consistency for guilt was lower at .50. The lower reliability for professional expectations and guilt may be due to the lower number of items on these subscales (3 items and 2 items each). The results for these subscales, therefore, should be interpreted with some caution.

Students completed a confidence questionnaire that was applied specifically to rhythmic and expressive movement. This consisted of the 15 management and planning items adapted specifically for teaching rhythmic and expressive movement. Students also completed a measure of their perceptions of pre-packaged rhythmic and expressive movement curriculum programs.

Conditions

Participants were allocated to conditions based on existing class groups. Each of the sessions in each condition was 1.5 hours in length. There were two conditions:

1. *Standard dance curriculum condition.* A traditional dance program consisting of 3 sessions of creative and choreographed dances (e.g., concert, recreational and cultural) was delivered. The dances sessions were aimed at different age groups/level years and were appropriate to deliver in a school environment.
2. *Pre-packaged rhythmic and expressive movement program condition.* The pre-packaged rhythmic and expressive program consisted of 2 pre-planned sessions suitable for a variety of age groups. The music and choreography notes required to deliver these session were included along with a DVD that the teacher was able to watch to help assist them in delivering the sessions. This program requires the teacher to learn the movements that are to be performed to music and lead the students.

Procedure

A University Human Research Ethics Committee approved the study. Participants were given a plain language statement and informed that their participation (completion of the confidence and motivation measures) was voluntary. Students completed a pre-test comprising the confidence and motivation measures (as well as the demographics information form) and were assigned to either the standard dance curriculum condition and

pre-packaged rhythmic and expressive movement program condition based on pre-existing class groupings. Students completed the two conditions during their scheduled rhythmic and expressive movement units of study completed as part of their course. Following their final session students completed a post-test comprising the confidence and motivation measures again.

Data Analysis

Cronbach's alpha coefficients were calculated for each of the confidence and motivation subscales to determine internal consistency. Scores (mean and standard deviations) for all subscales are presented as average score per item in each subscale. The analysis of the study consisted of 2 (time) x 2 (condition) mixed model ANOVAs with time as the within subjects factor and condition (standard dance curriculum vs pre-packaged rhythmic and expressive movement program) to determine changes over time and by condition.

Results

Confidence and Motivation Scores

Most confidence and motivation scores appeared moderate to high (greater than 4 on the 6-point scale). Lower scores were apparent for confidence in rhythmic and expressive movement at pre-test as well as for the motivation subscales of guilt, professional expectations, and amotivation. Cronbach's alpha coefficients were calculated for each of the factors, displaying adequate internal consistency for most subscales (Table 1.). Lower internal consistency was evident for professional expectations and guilt.

Table 1.

Descriptive Statistics and Internal Consistency for Subscales for Total Sample

Scale	Total (*n*=101)				Cronbach's alpha	
	Pre-test		Post-test		Pre-test	Post-test
	M	*SD*	*M*	*SD*		
Confidence						
Management and Planning	4.52	0.74	4.84	0.58	0.95	0.93
Implementation	4.39	0.69	4.75	0.63	0.80	0.81
Rhythmic and Expressive Movement	3.75	1.08	4.63	0.71	0.98	0.97
Pre-packaged Rhythmic and Expressive Movement Program Perceptions	4.37	0.88	4.91	0.83	0.89	0.88
Motivation						

Capability	4.02	1.03	4.53	0.87	0.84	0.78
Guilt	3.50	1.14	3.79	1.19	0.74	0.50
Self-satisfaction	4.07	0.98	4.58	0.79	0.93	0.90
Student Outcomes	4.27	0.96	4.74	0.74	0.82	0.79
Professional Expectations	3.94	0.93	4.38	0.78	0.66	0.54
Amotivation	2.99	1.22	3.21	1.37	0.89	0.84

Conditions

Descriptive statistics for the confidence and motivation subscales for the dance curriculum condition and pre-packaged program condition are displayed in Table 2. Results of a series of mixed model ANOVAs revealed that for the confidence management and planning subscale there was a significant time effect, $F(1, 99) = 17.63$, $p < .001$, $\eta p^2 = .15$, but no significant interaction effect for time x condition $F(1, 99) = .99$, $p = .46$, $\eta p^2 = .01$, thus the pattern of change for condition was not different across time for management and planning. There was also a significant time effect for implementation, $F(1, 99) = 26.36$, $p < .001$, $\eta p^2 = .21$, but no time x condition interaction, $F(1, 99) = .98$, $p = .17$, $\eta p^2 = .02$. Confidence in rhythmic and expressive movement had a significant time effect, $F(1, 99) = 60.79$, $p < .001$, $\eta p^2 = .39$, with no significant interaction effect, $F(1, 99) = .99$, $p = .33$, $\eta p^2 = .01$.

For the motivation subscales, there was a significant time effect for capability, $F(1, 99) = 23.30$, $p < .001$, $\eta p^2 = .19$, guilt, $F(1, 99) = 6.86$, $p < .01$, $\eta p^2 = .07$, self-satisfaction, $F(1, 99) = 28.19$, $p < .001$, $\eta p^2 = .23$, student outcomes, $F(1, 99) = 21.04$, $p < .001$, $\eta p^2 = .18$, professional expectations, $F(1, 99) = 17.32$, $p < .001$, $\eta p^2 = .15$, and amotivation, $F(1, 99) = 3.92$, $p < .05$, $\eta p^2 = .04$. There were no significant time x condition interaction effects for capability, $F(1, 99) = 2.16$, $p = .15$, $\eta p^2 = .19$, guilt, $F(1, 99) = .55$, $p = .46$, $\eta p^2 = .01$, self-satisfaction, $F(1, 99) = 2.342$, $p = .13$, $\eta p^2 = .02$, student outcomes, $F(1, 99) = .03$, $p = .86$, $\eta p^2 = .001$,or professional expectations, $F(1, 99) = 2.34$, $p = .13$, $\eta p^2 = .02$. There was a significant time x condition interaction effect for amotivation, $F(1, 99) = 4.83$, $p < .05$, $\eta p^2 = .05$, with amotivation increasing more for the pre-packaged program condition than for the dance curriculum condition. There was a significant time effect for perceptions of pre-packaged programs, $F(1, 99) = 20.72$, $p < .001$, $\eta p^2 = .18$, with no significant interaction effect $F(1, 99) = .74$, $p = .39$, $\eta p^2 = .01$.

Table 2.

Descriptive Statistics for Subscales for Conditions at Pre- and Post-test

Scale	Dance Curriculum Condition (*n*=49)				Pre-packaged Program Condition (*n*=52)			
	Pre-test		Post-test		Pre-test		Post-test	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Confidence								
Management and Planning	4.53	0.75	4.79	0.54	4.52	0.75	4.89	0.62
Implementation	4.38	0.69	4.65	0.62	4.39	0.70	4.84	0.63
Rhythmic and Expressive Movement	3.67	1.09	4.47	0.68	3.82	1.07	4.79	0.71
Pre-packaged Rhythmic and Expressive Movement Program Perceptions	4.35	0.88	4.80	0.72	4.40	0.89	5.02	0.92
Motivation								
Capability	4.03	1.08	4.39	0.85	4.01	0.99	4.65	0.87
Guilt	3.53	1.11	3.69	1.34	3.47	1.18	3.88	1.03
Self-satisfaction	4.02	1.01	4.39	0.81	4.12	0.95	4.76	0.75
Student Outcomes	4.23	0.99	4.70	0.73	4.31	0.94	4.77	0.77
Professional Expectations	3.99	0.99	4.27	0.80	3.90	0.88	4.49	0.75
Amotivation	3.10	1.23	2.95	1.31	2.89	1.22	3.46	1.39

Discussion

This study explored the confidence and motivation of university physical education students in teaching rhythmic and expressive movement and the influence of a standard dance curriculum and pre-packaged rhythmic and expressive movement program on confidence and motivation to teach rhythmic and expressive movement. Confidence to teach physical education was generally moderate to high, but was lower for confidence in rhythmic and expressive. Motivation in physical education was also generally high, but was lower in the motivation subscales of guilt, professional expectations, and amotivation. Lower scores of motivation in relation to guilt and professional expectations suggest that the undergraduate physical education students were motivated more by intrinsic (such as capability and self-satisfaction) and internally regulated motives (such as student outcomes) rather than by externally regulated means (such as guilt and professional expectations). Thus they want to teach rhythmic and expressive movement because they enjoy it and see it as being important rather than because they are required to do so by external requirements such as the curriculum or expectations of others.

The lower confidence in rhythmic and expressive movement is consistent with previous research on confidence in physical education which has identified differences in the views of rhythmic and expressive movement and lower confidence in teaching this area (MacLean, 2007). Those involved in tertiary physical education need to consider how this impacts on what we do and how to help students for whom this may be a barrier to delivering rhythmic and expressive movement experiences.

The changes were not significantly different between the conditions, suggesting that both conditions had similar effects on confidence and motivation; thus it may be the exposure itself that is crucial. Choice between the approaches, therefore, appeared to be less important in this study. One difference between the conditions was for amotivation, with increases in amotivation for the pre-packaged condition compared to the standard dance curriculum condition. This negative effect of the pre-packaged condition could be because it does not engage the students in active learning and creativity and choice, that is, all activities were pre-packaged and designed, which could result in lower-determination. Researchers and practitioners should continue to explore approaches to encourage physical education pre-service teachers to engage with rhythmic and expressive movement content.

Conclusion

Students in both the pre-packaged and standard dance conditions improved their confidence and motivation, this suggests that including rhythmic and expressive movement opportunities in the tertiary curriculum is beneficial for student motivation and confidence. This experience may help to supplement what may be limited experience in rhythmic and expressive movement as well as potentially negative beliefs about rhythmic and expressive movement (Jacobs, 2008; Russell-Bowie, 2010; 2013). Thus, it appears that opportunities to experience are important, especially given the lower initial confidence in rhythmic and expressive movement before the programs.

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Assessing the Associations between Homework Time, Physical Activity and School-Related Stress in Senior Secondary Students

Mr Sam Bolch & Dr Kate Ridley

Sport, Health and Physical Education (SHAPE) Centre, Flinders University

Adolescence has been labelled a time of 'storm and stress' for many young people. The school environment has the potential to foster a range of stressors. Homework presents a noteworthy stressor among senior secondary students and dedicating time to homework has the potential to conflict with other lifestyle elements including physical activity. Adolescents typically become less physically active as they progress into senior years of schooling. These declines are likely to impact adolescent health and wellbeing as well as educational outcomes. The primary aim of this study was to investigate cross-sectional associations between homework time, physical activity and school-related stress among a sample of senior secondary students. A secondary aim was to assess the stability of these associations across two consecutive school terms.

Sixty six participants (mean age 16.4 years) were recruited from a South Australian metropolitan school. Participants self-reported homework time via the Adolescent Sedentary Activities Questionnaire and school-related stress via the Adolescent Stress Questionnaire. Physical activity was measured using accelerometry over six days. Results showed a positive correlation ($r = 0.64$, $p < 0.05$) between homework time and school-related stress, and a negative correlation ($r = -0.37$, $p < 0.05$) between physical activity and school-related stress. No significant relationships were found between physical activity and homework time. Homework time, physical activity, school-related stress and their bivariate associations remained stable from school term two to term three. These findings have implications for schools and teachers interested in assisting students to manage the stressors associated with secondary school study and highlight the importance of promoting physical activity in secondary school environments.

INTRODUCTION

The school environment presents demanding social and academic circumstances and is a location that adolescents spend a large portion of their youth (Murberg & Bru, 2004). While the school environment can enhance student health, it also has the potential to foster stress among young people (Meijer, 2007). School-related stress (SRS) is described as the “pressure experienced in relation to the school environment and activities, which exceeds the individual tolerance level” (Haugland, Wold, & Torsheim, 2003, p. 128). SRS can manifest as a result of school work and school procedures, particularly in senior secondary years, where students face a peak in educational rigour with busy curriculum schedules that culminate in major assignment submissions and weighty examinations (Conner, Pope, & Galloway, 2009).

Moreover, many students are often pressured to excel academically due to cultural pressures and expectations (Larson & Verma, 1999).

SRS presents a risk factor for depreciating adolescent mental health outcomes (Gerber & Pühse, 2008; Hjern, Alfven, & Ostberg, 2008; Paige Feurer & Andrews, 2009) and has been associated with negative educational outcomes such as decreased self-concept, academic performance, conflict with teachers and grade anxiety (Kaplan, Liu, & Kaplan, 2005; Wenz-Gross, Siperstein, Untch, & Widaman, 1997). Homework presents a noteworthy school-related stressor among senior secondary students and the vitality placed on homework can have stress consequences for students as they battle time use decisions (Department of Education and Arts, 2004; Pope, 2010). An Australian study reported a strong positive correlation ($r = .71$, $p < .001$) between self-reported homework time and stress scores among 16 year olds (Kouzma & Kennedy, 2002). Dedicating time to homework, a form of sedentary behaviour, can conflict with other lifestyle elements including a need to be physically active. One Australian study reported that homework time can equate to up to 20% of adolescent sedentary behaviour (Hardy, Dobbins, Booth, Denney-Wilson, & Okely, 2006) while Conner et al. (2009) reported that associated stress from homework caused 60% of adolescent students to relinquish an alternative hobby activity including sporting and musical endeavours.

Physical activity (PA) has long been associated with physical health and social benefits for adolescents, however more recent research has established links with mental health benefits such as reduced depression, stress reactivity and anxiety as well as increased self-esteem and emotional self-efficacy (Biddle & Asare, 2011; U.S. Physical Activity Guidelines Advisory Committee, 2008; Valois, Umstattd, Zullig, & Paxton, 2008). PA has also shown to promote positive educational outcomes for adolescents (Centers for Disease Control and Prevention, 2010; Field, et al., 2001). Research investigating the association between homework and PA is equivocal. Increased homework time has been associated with increased levels of self-reported PA in adolescents (Feldman, Barnett, Shrier, Rossignol, & Abenhaim, 2003; Vilhjalmsson & Thorlindsson, 1998) and alternatively has been found to take time away from adolescents engaging in active pursuits (Sturm, 2005).

Limited research has investigated the associations between homework time, PA and SRS. Research within senior secondary contexts can contribute empirical evidence that could help teachers and management staff assist students to manage their academic demands alongside a physically active lifestyle. With this in mind, the primary aim of this study was to assess these cross-sectional associations in senior secondary school students. A secondary aim was to assess whether any associations remained stable across two consecutive terms in the academic year.

METHOD

Participants

A convenience sample at one metropolitan South Australian school was used for this study. Permission was provided by the Principal. All students in Years 10, 11 and 12 (n = 482) were invited to take part via a study information letter. A total of 66 adolescents (23 male, 43 female, response rate 14%) with a mean age 16.4 years (range: 15.3 – 18.1 years) consented. Participants were classed as moderate to high socioeconomic status based on mean socioeconomic indicators for areas (SEIFA) scores calculated using self-reported postcodes (i.e. 1031 compared to the national average of 1000 with SD 100) (Australian Bureau of Statistics, 2006).

Procedure

Ethics approval was granted by the Social and Behavioural Research Ethics Committee of Flinders University of South Australia. Written consent and assent were gained from participating students and their parents/guardians. Data were collected in 2011 over four weeks during two separate time periods, first within school term two with a repeat measure occurring in school term three. Time-point one occurred in May/June and time-point two occurred in August/September. Participants attended a short meeting at each time-point where an accelerometer was fitted and questionnaires were administered. Accelerometers were returned after six days of wear and a wear log was completed detailing any removal of the device during waking hours (except during showering/bathing or aquatic activities).

Measures

The Adolescent Sedentary Activities Questionnaire (ASAQ) (Hardy, et al., 2006) was used to self-report homework time. Twelve items were used to quantify the minutes of time participants attributed to a range of sedentary behaviours during each day of a recent school week and weekend. Homework items included ‘using the computer for doing homework’, ‘doing homework not on the computer’ and ‘being tutored outside of school hours’. Previous research has shown the ASAQ has good to excellent test-retest reliability and good face validity in a similarly aged sample (Hardy, Booth, & Okely, 2007).

Accelerometry was utilised to estimate time spent in moderate to vigorous physical activity (MVPA). Accelerometers measure the acceleration of body segments during physical movement and summarise this information into activity counts. Activity counts per unit time are then used to estimate time spent in PA. The Actigraph 3GTX accelerometer model was used (27 g; 3.8 x 3.7 x 1.8 cm) in the one axis (vertical) mode using 30 second epochs. Actigraph models have been found to be a valid measure of adolescent PA (Trost, McIver, & Pate, 2005). Students wore the accelerometer on the right hip via a cloth belt. Data were downloaded and analysed using ActiLife software (version 5) and a custom designed Excel macro. Accelerometer counts were converted to minutes of MVPA using the age specific Freedson conversion equation (Freedson, Sirard, & Debold, 1997). Any data recorded greater

than 20000 counts per minute were eliminated (Colley, Conner Gorber, & Tremblay, 2010). An invalid MVPA day resulted from less than 600 minutes of accelerometry wear time (Mattocks, et al., 2008). Three valid days including one valid weekend day were required for participant inclusion (Mattocks, et al., 2008).

SRS was measured using the Adolescent Stress Questionnaire (ASQ) (Byrne, Davenport, & Mazanov, 2007). This method of subjective self-report utilises a Likert scale from one (not at all stressful) to five (very stressful) for each school stressor. The ASQ was modified to include 15 items only from scales one, three and eight which focused on items that assess stress of school performance, school attendance and school/leisure conflicts. A total score indicated SRS ranging between 15 and 75 points. Examples of SRS items included 'keeping up with school work', 'getting up early' and 'having too much homework'. Previous research has shown good reliability for the specific scales used (Byrne, et al., 2007).

Data Analysis

Data were analysed using Statistical Package for Social Sciences (SPSS). All variables were confirmed as normally distributed. Preliminary analyses included an assessment of internal consistency and a factor analysis to determine the reliability of the modified ASQ measure. Pearson product-moment correlation coefficients determined the strength and direction of the cross-sectional bivariate associations between homework time, MVPA time and SRS. Paired t-testing was used to investigate the stability of mean homework time, MVPA time and SRS scores from time-point one to time-point two for a subsample of 31 participants. Pearson product-moment correlation coefficients and specialised t-testing assessed the stability of the bivariate relationships between the major variables from time-point one to time-point two for this subsample. A power analysis conducted a-priori revealed that in order to detect a medium effect size of 0.15 with an alpha significance value of 0.05 at 80% power, 67 participants would be required.

RESULTS

At time-point one, 52 participants (79% of total sample) and at time-point two, 37 participants (56% of sample) had valid data for all measures. Thirty-one adolescents (47% of sample) had valid data for all measures across both time-points. An internal consistency (reliability) analysis of the modified ASQ measure showed alpha values of 0.82 at time-point one and 0.89 at time-point two suggesting that the measure was viable ($\alpha > 0.7$) (Pallant, 2005). An exploratory factor analysis and Scree Test showed the measure to be suitable, with a sample size to item ratio of approximately 5:1 (Pallant, 2005).

Mean and standard deviation values for homework time, MVPA time and SRS at time-point one are provided in Table 1. Pearson product-moment correlations coefficients between homework time, MVPA time and SRS are summarised in Table 2. It was evident that significant correlations were present between homework time and SRS as well as MVPA

time and SRS. Analyses for the subsample of 31 participants showed that homework time and SRS maintained a significant strong positive association at time-point one ($r = 0.64$, $p < 0.001$) and time-point two ($r = 0.52$, $p < 0.05$). MVPA time and SRS maintained significant moderate negative associations that were numerically exact (correlation and significance values) across both time points ($r = -0.37$, $p < 0.05$). Homework time and MVPA time showed no significant association at either time-point one or time-point two. All bivariate correlations were t-tested using an assessment of the significance of the difference between dependent correlations from the same sample and no significant changes in the correlations were found. This indicates that all associations were relatively stable from time-point one to time-point two.

Table 1: *Descriptive Statistics for Major Variables for Cross-sectional Data at Time-Point One.*

	All Sample (n = 52)		***Female (n = 33)***		***Male (n = 19)***	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age (years)	16.4	0.7	16.4	0.7	16.3	0.8
Homework Time (min/week)	857.9	535.3	915.0	599.8	758.7	394.8
MVPA Time (min/week)	207.8	113.2	184.1*	112.5	249.1*	104.9
SRS (scale: 15-75)	45.4	8.5	47.2*	9.0	42.3*	6.7

Note. MVPA = moderate to vigorous physical activity. SRS = School-related stress.
*represents a statistically significant difference between female and male data ($p < .05$).

Table 2: *Correlation Matrix of Major Variables (n = 52) for Cross-sectional Data at Time-Point One.*

	Homework Time	MVPA Time	SRS
Homework Time		−.16	.58**
MVPA Time	−.16		−.32*
SRS	.58**	−.32*	

Note. Correlation values are Pearson product-moment correlational coefficients. MVPA = moderate to vigorous physical activity. SRS = School-related stress. *$p < .05$. **$p < .001$.

DISCUSSION

While a causal relationship cannot be assumed due to the nature of the analysis (cross-sectional / correlational), the strong positive correlation between homework time and SRS supports previous research (Ainslie, Shafer, & Reynolds, 1996; Brown, Nobiling, Teufel, & Birch, 2011; Conner, et al., 2009; Kouzma & Kennedy, 2004). The moderate strength

negative association between MVPA time and SRS also concurs with other studies that have reported negative associations between adolescent PA and stress in a variety of settings (Gerber & Puhse, 2009; Norris, Carroll, & Cochrane, 1992). Potential explanations for this negative association include psychological and physiological factors. It may be that students in the sample who were less focused on school performance may use sporting pursuits as an outlet for achievement and hence spend more time committing to such endeavours. Therefore as school is less of a priority to them, they may worry less about it. These students may receive a sense of 'mastery' in this context which may result in a general enhancement in mood and wellbeing towards different avenues of their lifestyle (Carmack, de Moor, Boudreaux, Amaral-Melendez, & Brantley, 1999). Alternatively, the MVPA and SRS association may reflect the 'distraction hypothesis' which involves leisure time PA acting as a temporary escape from certain stressors; allowing some level of rejuvenation (Carmack, et al., 1999). Such a finding may also reflect physiological connections; for example the release of endorphins following PA has the capacity to allow adolescents to feel positive and prepared to approach their school endeavours with a potentially lower level of associated stress reactivity (Holmes, Eisenmann, Ekkekakis, & Gentile, 2008).

Homework and MVPA time were not significantly associated in this study. Alongside equivocal findings reported in the literature, this suggests there is not a universal effect of homework on PA. It appears that some adolescents can effectively incorporate both behaviours into their days while in others, one behaviour displaces the other. Influences on this relationship may potentially include factors such as type and temporal timing of homework and PA and warrant further investigation (Kouzma & Kennedy, 2004; O'Dea, 2003).

Cross-sectional design is always a limitation when examining relationships and hence this research aimed to undertake a repeat measure in order to assess the stability of the associations between homework time, MVPA time and SRS across two consecutive academic terms. Despite the small sample size resulting from participant drop out, the analyses revealed that homework time and SRS had consistently stable and strong positive associations at both times of the year, for the sample available. Such a finding provides confidence that the relationships observed in this study warrant further investigation.

While this study had a number of strengths, including concurrent measurement of SRS, homework time and MVPA time, the use of an objective measure of PA and the assessment of longitudinal associations; there are a number of limitations that warrant discussion. The study was conducted as a pilot study; hence a convenience sample and low sample size were used. This limits the level of power and ultimately the ability to generalise results to other populations. Response rate was also low and it was not possible to determine whether non-responders differed significantly from participants, further limiting generalisability. The potential presence of confounding variables also presents a limitation. This is particularly

evident when measuring homework time as students will undoubtedly spend different amounts of time on certain tasks depending on the subjects they are undertaking and their relative cognitive abilities, strengths and weaknesses (Trautwein, 2007). As with all forms of self-report, there is also the capacity to over/under report and to report time spent undertaking homework when procrastinating or distracted (Shumow, Schmidt, & Kackar, 2008). Alternatively the homework SRS relationship may be influenced by the homework type and amount, the combination of subjects assigned, the timing/spacing of assignments or time restrictions (Kouzma & Kennedy, 2004). Only those who provided complete SRS, homework and MVPA data were included. Selection bias may be an issue as a result of this process as those who were perhaps more organised and diligent may have been included whilst those who were more disorganised in particular relation to their accelerometer may have been excluded. The modified Adolescent Stress Questionnaire (ASQ) (Byrne, et al., 2007) was designed to limit to stressors based on school performance, school attendance and school/leisure conflicts. Perhaps the questionnaire would have given a more informative interpretation of SRS if a wider range of stressors were included (for example, stress related to peer interaction and future uncertainties). A further limitation proved to be making SRS comparisons with other studies. Choice of stress measurement depends highly on the stress philosophy generated by the researcher and hence it was difficult to compare SRS levels if the ASQ was not utilised.

CONCLUSION

In conclusion, the cross-sectional and stable longitudinal bivariate associations observed between homework time, MVPA and SRS in this pilot research stimulate the need for further investigation. Research in these areas could contribute empirical evidence for consideration when developing policies and actions that promote holistic adolescent health and educational outcomes such as school policies related to homework time, education related to SRS for teachers, parents and students and supportive environments for PA in secondary schools. For example, students could be encouraged and supported to undertake PA during break times and ‘study’ lessons. Time management workshops could be offered at the start of the school year to assist secondary students to plan their use of time to effectively balance their study and PA within the academic year. Future research in this area should utilise a larger and more diverse sample in order to achieve greater power and ability to generalise findings.

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"I thought it would just be about healthy eating and exercise": What we can learn about school health education from students and its implications for teaching the new national curriculum

Jennifer Fane & Dr Samantha Schulz
Flinders University

The knowledge and experience students bring of health to university is strongly shaped by societal constructions of health and healthy behaviours. This happens through interactions with family, media, and the community, but is also highly impacted by the work of schooling, or the reproduction of societal values surrounding health by schools. This paper explores the challenges of teaching health literacy to post-secondary students who come to university health education with a highly individualised (and thus narrow) view of health. It reports on research involving a first year health education topic at a metropolitan Australian university, and the challenges facing students who are grappling to comprehend a social view of health. Data from the research is analysed to uncover how previous health education impacts upon students' ability to think in health literate (i.e. socially critical) ways. This analysis seeks to further our knowledge about the understandings of health with which students come to higher education, and how their previous health education continues to shape their health literacy. Implications for health educators implementing the new national curriculum in primary and secondary schools, as well as those working in pre-service teacher education, are discussed.

Keywords: Health education, HPE curriculum, teacher education, health literacy, critical inquiry

Introduction:

As 'healthism', or the pursuit of being healthy, becomes further entwined with the idea of the good, or valuable citizen, we have seen health education largely reduced to the idea of health as making 'good choices' with respect to eating healthy and getting enough physical activity (Ayo, 2012; Leahy, 2013; Tinning & McCuaig, 2006; Webb & Quennerstedt, 2010). As this narrow view of health has become enshrined in the social and cultural fabric of western countries, it has also been woven into curricula, reinforcing societal views (Ioannou, Kouta, & Charalambous, 2012; Lupton, 1999; Tinning & Glasby, 2002). While the efforts of schools to teach and impart practices relating to healthy eating and physical education/activity are important, emphasis on these highly individualised aspects of health narrow students' understanding and negate their ability to engage in more holistic and critical conceptualisations of health.

The most recent Australian national curriculum has attempted to redress this narrow view of health in the new Health and Physical Education (ACHPE) strand, which includes

guiding principles designed to broaden student understanding of their own and others' health. These principles include developing health literacy, and using critical inquiry approaches (ACARA 2012). However, as noted by the lead writer of the ACHPE and other experts in HPE curriculum development, no matter how innovative the curriculum, successful curricular change must be informed by, supported, and valued by those who implement it; teachers, administrators, and schools (Hickey, Kirk, Macdonald, & Penney, 2014). In response to challenges surrounding the implementation of the HPE curriculum, this paper examines data from a research project that examined first year university students' conceptualisations of health based upon their previous school experiences. The findings and ensuing discussion highlight key areas to be addressed for the successful implementation of the ACHPE.

Healthism, Health Education, and the Australian National Curriculum

Within the field of health education there is a great deal of interest in the impacts of neoliberal discourses of health, and perceptions of a 'healthy citizen' (Ayo, 2012; Fitzpatrick & Tinning, 2013; Gard & Wright, 2014; Leahy, 2013; Lupton, 1999; Tinning & McCuaig, 2006; Webb & Quennerstedt, 2010). This interest stems in part from the degree to which neoliberal ideas are reflected in current health education policies, curricula, and pedagogies, and their effects on society's conceptualisations of health. Understanding ways to work against 'healthism' in health education is imperative, for not only does healthism constitute 'a deeply political and troubling enterprise'(Fitzpatrick & Tinning, 2013) – in other words, by reproducing individualistic views of health that obscure the social and political foundations of health inequality – it also circumscribes the viewpoints of those who are educated within social systems informed by a healthism paradigm. Discerning how young people are influenced by 'healthism' is an essential part of challenging the damaging and anti-health implications of socially decontextualised thinking about health, an endeavour with which this research is chiefly concerned.

The new ACHPE attempts to address some of these 'troubling' issues through adopting a critical public health perspective (Macdonald, 2013, 2014). In a panel discussion with lead writer for the ACHPE strand and other HPE curriculum specialists, it was noted that due to a strong previous emphasis on physical education in Australian curriculum, it is likely that the health education component of ACHPE (being a departure from this norm) will be a challenge to successfully implementing the ACHPE (Hickey, et al., 2014). Lead ACHPE writer Doune Macdonald underscores the challenge of co-opting teachers into supporting and understanding the new curriculum. She draws on previous experience implementing a new HPE curriculum in Queensland, stating at that time, that despite significant changes to the curriculum,

> […] we have some teachers who have continued doing what they have always done. So despite some very creative and forward thinking practice, and important messages

around diversity, the implementation of a new curriculum is complex and multi-layered. (As cited in Hickey *et al* 2014, p. 185)

In a recent paper on curriculum reform, Lynch (2014) also highlights the challenges of enacting real teaching and pedagogical change with the implementation of a new curriculum. Lynch argues that 'surface change' (such as the use of new and revised materials and activities) is relatively easy, while 'real change' (changes in beliefs, values, ideologies, and understanding with regard to pedagogical assumptions and themes) is extremely difficult to affect (2014 p.10). It is here then, at the juncture between teachers' understandings and practices, and those endorsed by the new ACHPE, where even the most innovative and well-designed curriculum can be unwittingly misappropriated.

These tensions have deep roots, which are worth interrogating early. This is evident within a growing body of literature investigating pre-service teachers' conceptualisations of health and wellbeing (DinanThompson, 2004; Garrett & Wrench, 2012; Welch & Wright, 2011; Wrench, Garrett, & King, 2014). The examination of how pre-service teachers conceptualise health is arguably timely (with respect to the ACHPE) as it enables insight into how misappropriations or gaps evident within old HPE curricula may be perpetuated within the new. This paper contends that through examination of pre-service teacher understandings of health, the challenges for teachers in positioning their practice within the ACHPE will become clearer. In addition, the paper seeks to provoke discussion adminst the implementation of the ACHPE on the challenges facing pre-service teachers' ability to adopt the vision of health education promulgated by the new curriculum.

Methods

This paper derives from a larger study that sought to understand how first year university students made sense of, and articulated, socially critical health education. From the literature, we know that university is likely the first time that many students will experience non-individualised views of health due to the nature of school health education (Ioannou, 2006; Nutbeam, 2008; Quennerstedt, Burrows, & Maivorsdotter, 2010), and with respect to the cohort who participated in the study, this was almost exclusively true. The primary aim of the research was to examine the effectiveness of a first year health education course in engaging students in a social view. The course is an elective topic within a bachelor of education degree, with the vast majority of students studying to become health and/or physical education teachers.

Participation in the project was open to all who were enrolled. Of 79 students, 31 agreed to take part (17 male/14 female), all of whom consented to the use of their journals and essays as a base for analysis, with eight additionally willing to be interviewed. Ethics approval was obtained from the University and all participants gave informed consent. Upon completion of the topic, student work was collected for analysis. Data included students'

weekly reflective journals, final reflective essays, and transcripts from one-on-one and group interviews. This paper draws upon qualitative data gathered from student reflections. Student work was analysed using the iterative process of document analysis, which requires that data be examined and interpreted in order to elicit meaning, gain understanding, and advance empirical knowledge (Corbin & Strauss, 2008). From the document analysis, themes were coded and organised to reflect the ways in which students were engaging with the course's content, and their conceptualisations of health.

Findings

Three keys themes emerged from the data: new conceptualisations of health; grappling with health literacy; and misunderstanding critical inquiry. Examination of these themes sheds light on the challenges facing pre-service teachers in embodying the tenets and guiding principles underlying the ACHPE. Also, as the majority of students participating in the research were within five years of completing high school (81%), these findings provide insight into current HPE schooling practices and challenges current HPE teachers may face in enacting the ACHPE.

Health Education - not just nutrition and exercise

Analysis of the data revealed that the greatest challenge for participants engaging with socially critical health education was the dissonance between their pre-tertiary and tertiary health education experiences. Consequently, participant reflections highlighted a significant dissonance between previous and current health education. Examples of this were found throughout the student reflections; for instance, Brad[1] wrote in his journal:

> I have found that health is not just something as small as eating the right foods and exercising every day, it is so much more…Through the topic we were forced to ask questions about we have learnt all of our lives and break it down and look at health from other perspectives. – Brad

Likewise, Taylor wrote:

> My understanding of health has dramatically changed. I thought that studying health in year 11 and 12 would have given me a better understanding and I would just be expanding my knowledge as I had studied health recently and thought I would know what I was getting into. – Taylor

Some students were more articulate in pinpointing absences in their prior education:

[1] Names have been changed to protect participant anonymity.

> I did health at my high school when I was in year 11. I really enjoyed it and felt I learned a lot from the subject. However, looking at what we were taught I can see many aspects of health were left out. When starting this course I had a very narrow view of health and what it represented. – Alice

> My experience with health education throughout school focused on two strands: physical education, which was sport and athletics, and sexual health education which taught you about safe sex. My health education at school really only focused on the physical aspects. – Claire

These findings echo those of similar studies on pre-service teachers' perceptions of health (Garrett & Wrench, 2012; Welch & Wright, 2011). They also suggest a narrow focus within current school health education on nutrition and exercise, in some instances to the exclusion of all else. Areas identified by students in their reflections that they felt would be important additions to school health education included, among others, a focus on mental health, sexual health, sexualities, the social determinants of health, Indigenous health and global health issues. While these topics are now mandated within the 'focus areas' of the ACHPE, they have featured in Australian curriculum directives in the past. Yet given that they have not been adequately addressed, this signals an area of concern for the implementation of the ACHPE.

Health Literacy – what does a health literate student *and* teacher know?

While in their writing few students used the term health literacy when talking about the competencies, knowledge, and understandings that students should learn in health education, most addressed the tenets of health literacy, as defined by Nutbeam and Kickbusch (2000). These included a view of health education as the improvement of knowledge to help people make informed choices, which in turn enable people to take an active role in bringing about change to their environments to influence health. However, despite the socially critical focus of the health education course, pre-service teacher definitions of 'health literacy' remained largely individualistic, with heavy emphasis on risk management and individual lifestyle practices. The following student excerpts elucidate the challenge of shifting pre-service teachers' conceptualisations of health literacy from what they were taught in school:

> Good health education aims to motivate people to improve and maintain their health and prevent disease and reduce risky behaviour. - Stephanie

> I believe that good health education within a society such as Australia is about empowering and enabling young people to make informed good decisions within all aspects of their lives. - Lesley

> "In an ideal situation, good health education is about providing valuable and useful information regarding how to live a healthy life and obtain a high level of wellness tailored to the target audience in an easy to understand manner which emphasizes the importance of balance in one's life and the benefits of adopting a balanced lifestyle. - Jane

According to Macdonald, the ACHPE is meant to move beyond individualistic definitions of health literacy and to include "experience in critical reflection, social negotiation and the organisation of action" (Kemmis, Cole, and Suggett, 1983 as cited in Macdonald, 2014 p.242). However, as Alfrey and Brown suggest, we cannot assume that "teachers will permeate health literacy and the other propositions throughout [the] HPE"(2013 p.168) simply because the curriculum has decreed it so. If we acknowledge health as socially constructed we must also acknowledge that more "nuanced and critical understandings are necessary if curriculum and pedagogy within HPE is to dull the hallmark of [individualistic health education] tradition[s]"(Alfrey & Brown, 2013 p.169). That challenge is evidenced here by pre-service teachers' definitions of health literacy as highly individualised knowledge and skills, despite repeated exposure to the concept of critical health literacies.

Critical Inquiry – a critique of 'critical' inquiries

As a key outcome for the course, students were exposed to a range of critical inquiry approaches such as the sociological imagination (Mills as cited in Germov, 2009) and the structure-agency debate – (i.e. the notion that individuals are not separate from the social relations that produce them). These ideas and ways of thinking were new to students, and reconciling their previous understandings of health with a socially critical view proved challenging. Student struggles with critical inquiry were evidenced frequently by way of contradictions within their reflections. An example is Priscilla's reflection, in which she erroneously expresses a structure-agency standpoint stating:

> Maintaining health can be difficult for some, especially finding the motivation and right information to guide individuals…However, each individual's health is different which means only one's self can determine their health and capabilities. - Priscilla

Here we see the attempt to acknowledge that not all individuals have the same base or access to health (referencing the social determinants of health), however, Priscilla then contradicts this stance when stating that good health is entirely in the hands of the individual.

A similar contradiction emerges in Jason's writing when he attempts to use a critical standpoint to explain:

> Understanding the social determinants and underlying foundations of health help a health educator to determine what good health and bad health is, therefore they are able to teach good [health] education and transfer the knowledge onto their students. – Jason

Here Jason attempts to acknowledge the importance of the social determinants of health, yet instead of exploring the impacts of these determinants through a critical lens, he suggests that health is dichotomised by either 'good' or 'bad' education, and that a teacher has merely to impart that knowledge to students. What is missing here is the understanding that teachers alone cannot be held accountable for rectifying 'poor' health. And while some students did attempt to grapple seriously with critical inquiry, they still struggled to move beyond previously held assumptions. This is evident in Brent's reflection when he states:

> Utilising a structuralist-collectivist approach to health education, organisations, communities, and governments can invest in generating policy change which enables the creation of increasingly conducive lifestyle conditions which in turn empowers individuals to make healthier lifestyle choices. -Brent

While attempting to think socially about health, Brent reverts to an individualistic rhetoric of 'lifestyles' and 'personal choice', which negates the very approach he is attempting to promote. These contradictions draw attention to what Leahy et al. (2013) refer to as the inhomogeneous use of 'critical' in HPE. In a recent paper these writers ask "which forms of critical are deemed 'acceptable' and which are 'silenced' in HPE?" (2013 p. 176). Pre-service teachers may demonstrate a modicum of 'critical' thinking, but when their critiques remain grounded in individualistic conceptualisations they fail to move beyond a view of health as, principally, an individual responsibility. What continues to be 'silenced' in such critiques is what Leahy (2013) refers to as a socio-critical approach, which requires critique of health as inherently individualistic.

Discussion/Conclusion

The analysis of pre-service teachers' conceptualisations of health is valuable within the wider conversation on implementing the ACHPE in two important ways. Firstly, such analyses demonstrate the necessary knowledge and competencies within health education that have been excluded or 'silenced' in previous curriculum, thus reinforcing socially decontextualised ways of thinking and teaching about health. Second, the data referenced above highlights that even when exposed to health literacy and critical inquiry, students struggle to grasp these concepts and may naively subvert them due to their previous learning and experiences. In light of these findings, two key areas are identified for helping to support the implementation of the ACHPE in meaningful ways that address the 'deeply troubling' societal understandings of health as identified in this research.

The first is that the ACHPE is not meant to be a repackaged form of the previous national curriculum with a few new additions. The health component of the HPE strand was designed to specifically redress the dominance of physical education in curriculum (Hickey, et al., 2014) and to re-orient the HPE to tackle the anti-health messages encased in 'healthism' centred health education. To do this, teachers (both in-service and pre-service) need to be aware of what is missing from their own health education practice, and why it has been included in the ACHPE. Areas of contention, such as sexualities and relationships, and new areas of focus such as social and community health and wellbeing need to be explored and investigated by educators themselves so as to include them within their own definitions of health literacy. This needs to happen in order to displace and challenge highly individualised views of health literacy currently permeating teaching pedagogies and practices.

In addition to embracing a broader definition of health literacy, critical inquiry needs to be explicitly taught, practiced, and layered throughout the HPE strand. To do this it must be recognised that meaningful critical inquiry goes beyond deciphering nutrition information, analysing health claims, or simply acknowledging the social determinants of health. As demonstrated in this paper, pre-service teacher attempts to engage in critical inquiry reveal difficulties in subverting the highly individualistic nature of current health education. Also, and despite repeated exposure to critical paradigm, moving to a socio-critical approach is challenging for pre-service teachers. This highlights the need to make the individualised nature of health education evident to students, and to involve them in challenging not only their own conceptual limitations, but those we see underpinning broader social and cultural beliefs. Analysis of student reflections thus underscores the need to make critical inquiry approaches as explicit. This is necessary in order to position pre-service teachers as capable of imparting such skills and knowledge.

Focusing on the expanded views of health literacy and critical inquiry which feature in the ACHPE is an important step in meaningfully implementing the new curriculum. However, what this research attempts to emphasise is that, equally important, is first recognising the challenges that teachers and students face in moving beyond their tightly held individualistic conceptualisations of health. This suggest that there will need to be ongoing work in schools and the wider health education community to redress the healthism and anti-health messages that currently permeate schools during the implementation of the ACHPE.

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Online fitness communities and health literacies: Critical digital awareness

Stephanie T Jong & Professor Murray Drummond
Flinders University

With the popularity of new social media including Facebook and Instagram, online communities have become a global social phenomenon. The concept of health literacy, which broadly relates to the acquisition, understanding and application of health related information (Jordan, Buchbinder, & Osborne, 2010), is currently being impacted upon by contemporary social media, in particular the online fitness community. With current trending hash-tags relating to 'clean-eating', 'IIFYM' (if it fits your macros), 'paleo', 'flexible dieting', as well as 'fitspo' (fitness inspiration), 'squat challenge' and 'fit challenge', the online fitness community are altering the way people are sourcing health information relating to dieting and exercise. This paper will explore the concept of online health literacy created by online fitness culture by using participants' experiences with seeking exercise and food information online and will investigate the impact on their health practices. To examine this, 22 qualitative semi-structured online or in-person face-to-face individual interviews were conducted with females aged 18 to 24 from around Australia. The results of the study indicated that participants within the online fitness community are overwhelmed with information related to health related practices. Participants admitted to consuming information from unknown sources and implementing health practices in to their everyday lives based on information found through social networking sites (SNSs). The findings contribute to a broader understanding of how young females obtain health information and emphasize the need for critical digital health literacy to be developed at a younger age.

Keywords: social networking sites, online fitness culture, health literacy, critical digital health literacy

Introduction/Background:

Given the rapid adoption of the Internet and mobile devices, online communities and accessibility of information, online social networks are increasingly influencing people's dietary and physical activity patterns. The development of the online fitness community involves the evolution of fitness culture. This concept is traditionally linked to aspects of the gym in an offline setting (Bill, 2000; Johansson, 1996), inclusive of informal and formal exercise carried out for the purposes of keeping fit through using videos, books and simulation devices (Sassatelli, 2010), moving to an online stage. Although the role of the online fitness community is not specifically defined, it encompasses the concept of fitness culture where information linked to key concepts of health, for example, exercise and diet, is produced and distributed using typed and photographic or video communication. As SNSs revolutionize the concept of the audience into participants and users of information and

communication technologies (ICT) (Livingstone, 2003), new media technologies shape audience practice in new ways. This ability to create and exchange user generated content empowers online community members to produce health related posts themselves which can be easily and readily disseminated.

With the fast-paced progression of the Internet creating itself a niche place in making health information more readily accessible and widely available, it has increased people's involvement in their own healthcare, with positive and negative implications (Cline & Haynes, 2001; Rice & Katz, 2001). Evidence shows that the Internet serves as the primary source of information for health-related issues for young people (Berkman, Davis, & McCormack, 2010; Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005a; Hesse & Shneiderman, 2007; Velardo & Drummond, 2013). In turn this has the potential to impact on the health literacy of online participants. Health literacy is broadly concerned with the ways in which individuals acquire, understand and apply health related information (Jordan, Buchbinder, & Osborne, 2010). Previous research has looked into the influence of various factors in shaping health literacy and health related attitudes and behaviours, including schools (Drummond, 2010), parents (Anzman, Rollins, & Birch, 2010; Rimal, 2003; Velardo & Drummond, 2013; Velardo, Elliott, Filiault, & Drummond, 2010; Ventura & Birch, 2008), the home environment (Anzman et al., 2010; Howard, 2007; Tucker, 2009), peers (Drummond, 2010; Paek, Reber, & Lariscy, 2011), the health care system (Manganello, 2008) and the mass media (Champion & Furnham, 1999; Paek et al., 2011; Tiggemann & Slater, 2013). As children grow older, they become increasingly involved with their health care, holding more autonomy with their health decisions and therefore their ways of sourcing health related information.

Previous research has examined the issues faced by consumers seeking health information online, noting key factors including concerns about the evaluation, credibility and accuracy of health information found using the Internet (Gray et al., 2005a; Rice, 2006). Additionally this has been linked to the concept of trustworthiness (Peterson, Aslani, & Williams, 2003), difficulties comprehending information (Murero, D'Ancona, & Karamanoukian, 2001) or the feeling that the information retrieved was overwhelming (Berland et al., 2001; Velardo & Drummond, 2013). However, this field of research linking to health literacy levels predominantly focus on literacy and numeracy skills in recognition of clinical or medicine specific information received (McCormack et al., 2010). More recently there has been a shift in the definition of this concept to embrace it as valuable life skill (Kickbusch, 2009; Peerson & Saunders, 2009) emphasising 'people's ability to build self-reliance and make decisions about health not only in healthcare settings but in everyday life' (Velardo & Drummond, 2013, p. 138). It is important to note that SNSs differ from traditional forms of media and require specific skills and capabilities that form a part of the eHealth literacy construct, an important component of health literacy where information is sought by using ICT. When young people use the Internet to find health related information,

they are faced with a process drawing on their media literacy and health literacy. Jain and Bickham (2014) used a combination of these literacies and created the term 'health-related media literacy'. Through the process of using the Internet as a mode to source health information, people are required to access, understand, analyse and evaluate the health information found from SNSs and then apply this information to make appropriate health decisions. Issues arise within each of these steps, however the focus of this paper will draw on the challenges associated with the analysis and evaluation aspects which raise concern with critical literary (e.g. inability to differentiate accurate from inaccurate online health information). This process presents challenges unique to young people and to SNSs about health and fitness.

The current study employed a qualitative approach to investigate the SNSs *Instagram* and *Facebook* to explore online fitness culture and communities and the way their 'followers' present and understand health and what it means to be healthy. This study also explored the nature of socially constructing healthy ideals online and how this potentially impacts young women's health literacy (health knowledge and health practices).

Method:

Participants:

Following Lamb's (2011) recommendations from an online UK research project, participants were recruited through the use of SNSs. Through alias researcher accounts on Instagram and Facebook where information pertaining to the study was easily visible, the researcher purposefully sampled participants who met specific criteria related to the use of online fitness social networking accounts. Consistent with pre-existing literature regarding age group and use of SNSs (Sensis, 2013) and the characteristics of online health information seekers (Rice, 2006), young women aged 18 to 24 were selected as the ideal participants for this study. Research participants volunteered to participate from various states around Australia (South Australia [14], New South Wales [4], Queensland [3] and Victoria [1]). While leaving the invitation open to anyone who considered themselves a part of the online fitness community to participate, the aim was to attain participants from varying levels of participation (e.g. members with a large social network following to members who were more observers in the community).

Data collection and analysis:

Majority of the interviews were generated through email requests or social networking comments, with few gained through the process of 'snowballing' from initial respondents. Twenty-two interviews were conducted for the duration of 35 minutes to over 90 minutes. Individual interviews provided an opportunity to explore how online fitness culture is created and experienced as a result of the central role that individuals play in creating this culture

(Gaskell, 2007). This semi-structured approach granted the research an emic epistemological stance (Kottack, 2009), placing precedence on the views of participants in online fitness communities, and to their online health information seeking practices. The interviews were conducted either face-to-face if in close geographical proximity, or via the app 'Skype' if outside of South Australia. Limitations of online interviews through 'Skype' are noted, for example, less researcher control over the environment (Chen & Hinton, 1999), possible issues with technology and the need for participants to have Internet access and technological competence (Hughes & Lang, 2004; Jowett, Peel, & Shaw, 2011; Mann & Stewart, 2000) and the impact on visible social cues such as facial expressions, tone of voice and body language (Kozinets, 2010). However, audio visual connections are extremely valuable (Kivits, 2005), especially when researching online communities (Kozinets, 2010), and provide an avenue for in-depth understanding from participants around Australia.

Each interview was audio-recorded using a voice recorder and then transcribed verbatim. Thematic analysis was used to examine the emerging concepts and to identify meaningful segments of text and broader general themes. This was underpinned by the theory of social constructionism which sees current social representations of fitness and health as dependent upon socially constructed assumptions, expectations and values, further analysing the social context within which individuals live (e.g. SNSs) in order to understand how the transmission of information and ideals is embodied into reality.

Results:

The following section details one primary finding from the research relating to the online fitness community and the impact upon young females' health literacy.

Social networking site health information and health literacy

Participants expressed positive and enthusiastic attitudes about the range and type of health related messages and knowledge that was readily available and easily accessible via Facebook and Instagram. Social networking accounts about health and fitness confront followers with a proliferation of images and information relating to 'healthy workouts' to 'healthy foods' and 'healthy recipes'. Through the prevalence of popular hash-tags on SNSs, the idea of 'healthy' is permanently in view, with online fitness communities offering a popular medium through which exercises and eating practices are repeatedly reported. Examples of popular hash-tags include 'clean-eating', 'IIFYM' (if it fits your macros), 'paleo diet', 'flexible dieting', as well as 'fitspo' (fitness inspiration) and 'squat challenge'. Participants all stated that the information received via online fitness SNSs account is readily used in their daily lives. From their experience being encompassed in online fitness culture, all participants stated a definite influence on their health practices, specifically relating to diet and exercise. For example:

Charlotte: I have definitely changed my training regimen up to incorporate stuff that I have seen online.

Tess: it has given me a lot of workout ideas and it gives me some motivation as well especially when I scroll through the Instagram feed before I go and work out.

Emily: I guess that's [online fitness SNS accounts] what prompted me to get into "clean-eating". I found that online.

The frequency of posts around different diets and techniques and new vocabulary associated with health, combined with the plethora of hash tags used within the online fitness community can overwhelm the online fitness audience. Participants reported that the sheer volume of new material appearing on the SNSs used could be confusing and lead to detrimental experienced. This was particularly so when they started using a 'trend', for example, a fitness technique from an Instagram account without having full information on the correct form available.

Numerous conversations arose about varying diets viewed on SNSs. Noteworthy was the diversity in conversations about the diet they perceived to be more suited to them.

Ava: I'm not full clean eating now, but I am eating healthier, doing the paleo diet

One of the participants with a larger following discussed the rivalry between two diets and how willing people were to express their opinions online about certain eating behaviours, whether informed or otherwise.

Bec: It's a bit weird. Flexible dieters versus clean eaters is a bit of a debate. I have had a couple of people comment on my photos and say, "oh you shouldn't be eating that", "you know if you were eating whole foods it would be much better for your body".

While firstly discussing the positive nature of the health messages viewed in online fitness culture, only after being prompted did the participants note that the health information gathered through SNSs was not always credible. The following dialogue is an example of the thoughts associated with credibility and how participants negotiated their thoughts on whether people were credible:

Tess: I read it and if someone else posts something that contradicts it, and I kind of know the right answer I think, "what you are saying is not right", so sometimes I know whether it is credible or not from my own opinion, from my own experiences of what I have been told

Although noting influence from SNSs about fitness and health on their own health practices, some participants were somewhat defensive about the information sought online, and deduced this notion by stating that they would conduct further 'research' on the topic.

> *Cienna: I look at things online, news articles and stuff like that*

Although the insight from this study can be deemed as negative, it is also important to acknowledge SNSs as agents for positive change as demonstrated in the perceptions of online fitness communities by participants. Participants demonstrated their learnings from online fitness SNSs in their discussions and were able to articulate some of these:

> *Isla: It has motivated me to do more research. Now I am more knowledgeable on what macronutrients are, and stuff like that whereas before, I just looked at calories in versus calories out, whereas now I look more at the other things that I never considered before*

Discussion: Implementing critical digital health literacy

This paper provides some insight into online health information seeking using digital platforms of SNSs and their impact on health literacies and health practices of young females. This study reveals the health literacy of young females involved in online fitness culture and contributes to the debates on constructed health knowledge and health literacy. This study also investigates the manner in which online communication facilitates the social construction and further dissemination of health knowledge. It is important that the data be read with contextual awareness of the situation participants are in and refer to.

Findings from this study revealed the use of online fitness SNSs as a comprehensive source of health information which impacts upon the health literacy of people participating within online fitness communities. Notable influences were made on the participant's health practices relating to diet and exercise from the knowledge gained through online fitness SNSs. A social constructionist perspective suggests that the online fitness community plays a significant role in shaping health beliefs, norms and constructions around food, exercise and health. The ways in which health are socially constructed plays a significant role in the health knowledge of consumers by what they are exposed to from images, quotes and information stated online (both from accurate and inaccurate sources). Ultimately the underlying socially constructed norms must be addressed along with the development of digital critical literacy.

It has been noted that adolescents find it difficult to evaluate the accuracy of the information they find online (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005b). As adolescents turn to online trusted brands to justify credibility (Jain & Bickham, 2014), participants in this study based credibility on looks, personality, amount of followers (popularity) and the number of pictures visible about their journey. While at times some

participants were able to distinguish facts versus opinions when looking at online health information, it was evident that most participants did not review authorship, endorsements or sponsorships or objectivity to assess credibility and applicability to apply it to their own life. Challenges faced with critical awareness or critical health-related media literacy could have detrimental effects on the health and wellbeing of participants within the online fitness community. The inability to understand, analyse and evaluate health information found from SNSs could pose damaging effects when applying this information to people's own lives.

While it is impossible to state that social networking site accounts about health and fitness have a detrimental effect on all online fitness participants, Jain and Bickham (2014) state that the extent to which young people will benefit from using the Internet as a source for health information is primarily determined by their level of media and health literacy.

In pursing understanding around the influence of online fitness social networking accounts on young females' health literacy, this study provides knowledge which has implications for educators regarding the importance of helping young people become critical consumers of online information. This is vital in order to distinguish accurate facts from misleading information which is at times perpetuated by numerous SNSs users at any time. In relation to the Health curriculum, a strong emphasis needs to be placed on the ability to critically discuss, evaluate and analyse information from an early age. Education involving the fundamental eHealth literacy skills (see The Lily Model, Norman & Skinner, 2006) have not changed. However, the contexts in which they are expressed have been altered by social media Accordingly, it becomes imperative that health education focus on empowering students by developing skills in conducting analysis and evaluation of the quality of health information found online. It is unclear from the study if 'further researching' conducted by participants for further health related information is from established accurate sites therefore allowing the knowledge gained to be implemented without due care. Ettel et al., (2012) state it is unreasonable to expect that adolescents and young adults thoroughly research into peer-reviewed health literature. Nevertheless, creating a curriculum where students explore eHealth literacy skills in relation to their most commonly used sources allows learning to occur in a practical environment where students gain a real-world application developing holistic student health and wellbeing.

Researchers have suggested creating tools for assessing a broad range of health information on the Internet (Clark, 2002). Currently several organisations have developed guidelines focused on healthcare websites. However, these need to be kept up-to-date and further developments are needed to apply these across a broader set of Internet sites relevant to young people's uses (e.g. SNSs) in order to help young people develop critical evaluation skills. Strategies to support people seeking health information online such as public health programs to develop critical digital literacy specifically pertaining to SNSs may also be a point of consideration.

Despite current challenges and problems with use, the Internet and more specifically SNSs about health and fitness have become increasingly indispensable in addressing health promotion and greater awareness. Future research may develop a deeper understanding of the implications of implementing this health knowledge in order to promote and facilitate more positive behaviours. More research is needed in this field to better understand the challenges posed to the eHealth literacy of young people, and to propose effective solutions. A multifaceted approach engaging educators, health information providers, parents and policy makers may be best positioned to make a successful impact.

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‘Teacher health literacy: The importance of multiple healthy role models within the school environment’

Stefania Velardo & Murray Drummond
Flinders University

Health literacy, defined as the ability to access, understand and use health information, has been identified as a key public health goal in Australia. In an educational context, ACARA’s Revised Australian Curriculum: Health and Physical Education – Foundation to Year 10 explicitly highlights the importance of developing children’s health literacy, based on the recognition that educational settings have the potential to foster a health literate youth. Teachers are fundamental to the success of school-based health promotion initiatives, given their roles in educating children about health issues and facilitating the development of health literacy skills through classroom and school activities (St Leger, 2001). This paper draws on data from a larger qualitative study that explored child health literacy, in a nutrition context, from the perspective of 38 students aged 11-12. The naturalistic manner of qualitative inquiry led to a number of key themes relating to the ways in which children access, understand, evaluate and use nutrition information. This paper provides a ‘snapshot’ of one smaller sub-theme that explores the role of teachers in fostering youth health literacy. Based on the children’s narratives, many teachers portray simplistic accounts of health and individualism in the health education context. By contrast, some children described more meaningful and participatory approaches to health education that served to develop health literacy to a greater degree. These findings prompt consideration of effective teacher training practices in pre-service and in-service contexts.

Introduction

The role of schools with respect to children’s health has long been well established, with the recognition that schools provide a promising avenue to diffuse health information and foster healthy lifestyles, through continuous and intensive contact with children (St Leger, 2001). The *Health Promoting Schools Framework* (World Health Organization, 1998) advocates that school settings can support health through a whole-school approach, beyond an exclusive focus on health education. The term ‘whole school’, in this context, refers to the combined interactions of a school’s curriculum, its ethos, management, policies and practices, environment, and its relations with students, staff and broader community partnerships, in ways that are conducive to health. The success of a health promoting school is dependent on a number of factors (St Leger, 2001). While teachers do not merely represent ‘problems’ or ‘solutions’ to school health promotion, their pedagogical approaches and practices are extremely important. Traditionally, teachers have been acknowledged for educating children about health issues and facilitating the development of health-related skills through classroom-based activities (Burke, 2002; St Leger, 2000). They can also serve as role models

by portraying positive attitudes towards health that may lead to greater enthusiasm and receptivity to health concepts (Drummond, 2010). Today, teachers are acknowledged for their roles in developing health literacy. Health literacy fundamentally constitutes "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (Nutbeam, 1998, p. 357). Health literacy is also said to reflect individuals' competencies "to know about, to acquire and make best use of the external and internal resources available to them" (Abel, 2008, p. 170). Despite continual debates around the specific constituents of health literacy, the aim of empowerment lies at the core of key definitions, thereby reflecting the overarching principles of the *Ottawa Charter for Health Promotion* (World Health Organization, 1986). Health literacy is advantageous to people in all age groups, including school-aged children (Paakkari & Paakkari, 2012) Meeting children's specific needs, including the delivery of information that can be easily accessed and understood, and developing health awareness, plays a key role in maximising future personal and social health (Manganello, 2008). Accordingly, strategies to address youth health literacy serve a key purpose in contemporary health promotion research and practice.

In Australia, developing child health literacy through school-based health education is advocated through ACARA's *Revised Australian Curriculum: Health and Physical Education – Foundation to Year 10.* ACARA defines child health literacy as *"*the ability to selectively access and critically analyse information, and take action to promote their own and others' good health" (Australian Curriculum, Assessment and Reporting Authority, 2012, p. 24). The definition adopted by ACARA is promising in that it reminds us that health literacy is a social capacity, rather than a purely intellectual one. In an effort to challenge the prevailing biomedical view of health, Nutbeam discusses the importance of developing individual and community capacity for social action to address broader determinants of health, which he terms *critical health literacy* (Nutbeam, 2000). While ACARA aptly refer to key health literacy concepts, the question remains as to how teachers will address such competencies in the classroom. Little research has focused on teachers' own health literacy which presents a clear gap for researchers who are interested in the skills required by teachers to enact and support youth health literacy. The data presented within this paper emerges from a larger study that investigated the concept of child health literacy, in a nutrition context, from the perspectives of 38 children (aged 11-12) living in a disadvantaged region of Adelaide, South Australia. The key themes emphasise the dynamic connections between various interpersonal agents and organisational structures in shaping children's health literacy. Based on the children's accounts, the school constitutes a key setting. Here we present a 'snapshot' of the broader findings by discussing a smaller sub-theme related to teachers and the classroom context. Though limited, these findings provoke thought around contemporary teacher training.

Methods

This paper draws on data collected within three DECD primary schools located in a common local government area of Adelaide. A qualitative interprevist approach guided the research, in order to elicit 'the voices' of the 38 preadolescent participants to explore important facilitators and barriers surrounding health literacy. The research also employed complementary social constructionist and socio-ecological frameworks. Child-centred research acknowledges youth as citizens in their own right and we contend that it is essential to gain insight into children's views about meaningful health literacy skills and experiences. This is particularly important for preadolescent children, given the increased health-related independence that is characteristic of the transitional phase between late childhood and adolescence.

Prior to participant recruitment, this study was approved by the Flinders University Social and Behavioural Research Ethics Committee, as well as the South Australian DECD Research Unit. Information about the project was disseminated to children and parents at each respective school, by means of scheduled talks, printed information sheets and forms requesting parental consent. Students indicated their willingness to take part in the project by returning consent forms to their classroom teacher, which they co-signed with a parent/caregiver. In total there were 38 participants, comprised of 14 boys and 24 girls. Across the three schools, data emerged from a series of focus group discussions (n= 6) and in-depth individual interviews with additional students (n=14). Focus groups were chosen as they are an effective data collection method for childhood research, since children are often familiar with the process of a group discussion in school (Morgan, Gibbs, Maxwell, & Britten, 2002). All focus groups comprised four participants and were homogenous with respect to gender, in line with literature recommendations (Hoppe, Wells, Morrison, Gillmore, & Wilsdon, 1995; Morgan et al., 2002). The study also included private individual interviews with other students, in order to "examine as many aspects of the research issue as possible" (Fossey, Harvey, McDermott, & Davidson, 2002, p. 728*)*. The group and individual interviews all utilised a semi-structured open-ended questioning technique. A review of the literature on nutrition literacy contributed to the development of a semi-structured interview guide that was used in the focus groups and individual interviews. Some of the questions that are relevant to the results reported in this paper included; where do you learn about nutrition; how do you learn about nutrition; what kinds of things help kids to have good nutrition; tell me about the ways that you use what you've learned about nutrition.

Interview and focus group data were audio recorded transcribed verbatim and analysed by the lead author. Findings were analysed inductively, using the approach outlined by Braun and Clarke (2006). Within the final stage of analysis, themes were conceptualised and re-contextualised in relation to existing ideas around health literacy and nutrition, within a broader social constructionist and socio-ecological framework.

Results

The following section elaborates on one smaller sub-theme identified through inductive analysis, which related to teachers and nutrition education. It is important to note that these findings are situated within the broader theme of *'the school setting'*, which highlights the wide-ranging social and environmental influences on children's health literacy. Further discussion regarding other aspects of the study and a full summary of emergent themes will be reported elsewhere. The three schools involved in this study will be described as School A, B and C hence forth, to highlight similarities and differences in the children's narratives.

While there were diverse opinions conveyed about educators across the group, students agreed that teachers provided them with basic education about healthy food choices by discussing the importance of fruits and vegetables versus sugary and fatty foods. However, this was the extent of health education in some cases. It is likely that the focus on health in the classroom was dependent not only on the classroom teacher, but broader organisational structures within the school. For example, children from School A emphasised the role of their classroom teacher in regularly discussing health and nutrition, in addition to providing a formal health education lesson once a week. Children from School B similarly reported attending a weekly health class, although this was directed by a specialist health and physical educator who was not their classroom teacher. Conversely, students from School C reported a limited focus on health within their classrooms.

The children interviewed at School A described a classroom approach that was centred on health and physical education. They consistently acknowledged the significant role of their classroom teacher in developing skills they could use to make healthier choices, through an integrated curriculum that focused on several topics. The children also alluded to certain teaching strategies. For example, they talked about engaging with health information in class under the direction of the teacher, who encouraged them to evaluate the nutritional content of certain foods. According to one girl:

> We do health lessons every Monday. This week we went through which stages of life you go through… And we looked at the food labels… On the computer we researched how good this is versus this. Now I know how much fat and sugar is in it and I know what to look for at the shop to compare. When I go I look at the food label thing and I see that it's got 190, "Wow I'm not eating that! I'll go look for something better!"
>
> R: What website did you go on?
>
> A few. For the LCM bar we went on the actual website, the LCM website, so it's got to be true because it's the actual website.

Another student provided further insight into the teacher's approach:

> My teacher talks a lot about healthy eating at school. We learned not to bring energy drinks or lollies because they have too much sugar and caffeine. And we did a project that told us that you have to look at the label before you buy something. LCM bars have a lot of sugar in them!

The same finding also emerged within a focus group interview:

> B: Ms [teacher] looked up LCM bars.
>
> C: Almost half of the bar was made out of sugar and had sugar in it!

Some girls reported that this impacted on their attitudes towards health, for example:

> In class we had a muesli bar with fruit on it and just a normal LCM bar. And we went on the internet and we saw how much sugar they had and what they use to make the LCM bar and then we looked at how to make the fruit bar and how much sugar. And they both nearly had the same but the LCM bar had more sugar and the fruit one only had like six bits of fruit in it…I wouldn't pick an LCM bar because it's just got so much sugar in it and all that stuff.

Evidently the children found this particular activity to be interesting and the learning experience clearly made an impression on them, given the constant references within the interviews. They were engaged in active learning and the teacher importantly chose to focus on a food product that was relevant to their lives. In this way, she demonstrated an understanding of cultural norms and the children's social worlds. Encouraging the children to actively obtain and appraise the information about LCM bars on the internet arguably served to develop some useful investigative skills. Another girl reflected on her teacher's input, whilst discussing the credibility of a television advertising message endorsing Nutella spread,

> They (advertisers) don't say how much sugar there is … it's got HEAPS! I've read one of the labels before and it's got lots of sugar. In class we do healthy lunches and you get a raffle ticket and somebody had Nutella and somebody had peanut butter and they didn't get a raffle teacher because Ms [teacher] knows that it's not healthy.

Children from School B similarly reported using the internet in class to locate nutrition information for school-based activities. Some participants specifically commented on being directed to more reputable websites by their teachers during class time, including *Kellogg's* and *Go for 2&5*. For example,

> In the morning you should have something that won't make you tired for the rest of the day, like WeetBix. I learned this a while ago on a website that we got from health. It was like last year. It tells you what foods you should eat for breakfast, lunch and dinner.

Based on the children's narratives, other approaches to health education were more traditional, since they focused on the transmission of functional knowledge. When prompted, the children commented on these issues by discussing the lack of health education in some classrooms. For example, many participants from School C discussed their teachers' sole emphasis on discussing the benefits of fruit and vegetables. It was interesting to note that children from all of the schools alluded to aspects of curriculum that did not necessarily build their understanding of health mechanisms. For example, learning that brown bread is healthy interested some students, although they did not necessarily understand how or why this is the case. Regardless of the school attended, many children indicated that they would be interested to learn more about nutrition at school. Topics of interest included the origins of foods and different types of healthy foods. Common responses included:

> I want to learn on the basic foods that I eat, I want to know how much nutrition I can get out of it so I can know whether to keep eating it or not.

> I'd like to learn about the nutritious things…and what's not. I know a little bit but I could learn more.

Another common finding to emerge centred on the construction of the teacher as an 'expert'. Participants generally conveyed trust in their teachers and viewed them as reliable information sources;

> We do fruit quizzes [in Health class], so what fruits and veg go into groups, and what's healthy … you would know if the information is true if it's from a teacher that's found it out.

Such trust proved to be problematic when teachers inadvertently reinforced negative health ideologies in their simplistic and individualistic portrayals of health. One example emerged whereby the students described discussions centred on weight. One group of boys elaborated,

> A: Last year we had some health lessons with our sports teacher, like don't eat this

> B: Yeah like you don't eat McDonald's every single day or you'll get fat.

Such an approach tends to emphasise the ways that foods contribute to ill health (rather than emphasising positive aspects of food through salutogenic approaches).

Another girl discussed the negative implications of sugary foods, based on her teachers' advice;

> Sometimes we learn about healthy stuff from our teacher … like don't eat too much of things with sugar because if you eat too much you get really unhealthy and fat.

Discussion

From the children's perspectives, teachers were knowledgeable educators who conveyed reliable health information, which is certainly encouraging. Some teachers assisted students in developing health-related skills, beyond the acquisition of theoretical knowledge. The teacher who encouraged students to evaluate the nutritional content of certain foods online serves as one example. Another teacher attempted to link students to health resources by directing them to reputable health websites that they could independently access. Other approaches that largely focused on traditional transmission of knowledge appeared to be less interesting, according to the students. We know that a focus on theoretical knowledge alone is seldom sufficient for empowering children to make healthier choices (Paakkari & Paakkari, 2012) and the children reported that they did not enjoy receiving overly generalised health information from their teachers that was not personally relevant. Begoray et al. also emphasise the importance of the classroom context in their research, which found that older students' health literacy was largely influenced by the "quality and quantity of health information disseminated … [and] the communication of teaching styles through which the information was delivered" (Begoray, Wharf-Higgins, & MacDonald, 2009, p. 37).

Many children inadvertently shed light on their teacher's simplistic accounts of health, by discussing the perceived notion that certain foods had negative physical implications such as weight gain. A similar theme was noted in research with Scottish teachers, whereby many practitioners were unaware that their own health values might actually reinforce pressures amongst adolescent children (Johnson, Gray, & Horrell, 2013). Recent Australian research also examines this issue in pre-service and in-service contexts (Wrench & Garrett, 2014). Such ideologies are problematic as they emphasise personal responsibility and may perpetuate victim blaming. We emphasise that teachers' *own* health literacy (in addition to their conceptual understanding *of* health literacy) may not only impact their capacity as health educators, but may inadvertently reinforce certain health-related messages to children. In acknowledging the diversity that teachers bring to their work, including different areas of expertise and wide ranging attitudes surrounding health, it is important that all teachers at least feel comfortable with health literacy ideology in order to move beyond the traditional 'pen and paper' content-focused learning of the past.

Professional learning for teachers in pre-service and professional development contexts is crucial and requires the support of schools, professional learning associations, and high education institutions (Alfrey & Brown, 2013; Perez-Rodrigo & Aranceta, 2003; Tappe & Galer-Unti, 2001). In considering the knowledge, skills and understanding that students are expected to acquire through the draft curriculum, teacher training should embrace participatory pedagogies in order to move beyond improving functional knowledge. Rather than solely providing health content as part of traditional lectures and tutorials, educators working with pre-service teachers should facilitate learning by drawing on relevant theory

and research that underpins effective practice, through the integration of practical activities. Training should address dominant individualistic health ideologies by providing students with opportunities to unpack social discourses, through discussion and media analyses. It is important that teachers develop critical thinking skills in order to understand the wide ranging social, cultural, environmental and political determinants of health that influence them as individuals, and as citizens within a broader community (Paakkari & Paakkari, 2012). We contend that self-awareness is an important step in teachers reflecting on their own pedagogical approaches and developing an understanding of learning conditions that support health literacy.

Ideally we would also see teachers enacting critical literacies by advocating for community needs and seizing opportunities to address relevant issues through social change (Tappe & Galer-Unti, 2001), though we understand that there are many constraints to upstream practice. Still, at a minimum, teachers should espouse youth health literacy. In order to do so, it is important that they feel confident navigating, understanding and evaluating the impact of contemporary media on health, given the ubiquity of digital media in children's social worlds. Such skills can only reasonably come through specialised training, and further research should seek to understand teachers' experiences, needs and preferences for such professional development in pre-service and in-service contexts.

Health literacy should be at the forefront of the school agenda, though it is not our intention to position health literacy in the ongoing debates around the proverbial focus on other learning areas. The data, when examined in relation to the broader contextual frameworks, emphasise that teachers and the curriculum they implement cannot be held solely responsible for children's health literacy. We also acknowledge the 'real' issues that practitioners face, including timetable constraints, increasing workload demands, and expectations to operate as an 'expert'. However, as key players in children's health literacy, teachers deserve meaningful opportunities to develop, practise, implement and enact health literacy competencies.

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"When BMI is measured by NAPLAN, give me a call"; overcoming the challenges in a regional physical activity project

Megan McNamara
MLMgt (Executive Leadership), CQ Sporty Schools Project Manager, QLD Government Department of Education and Training.

The Physical Activity Innovation with Schools (PAIS) 2014-2015 is a collaboration between the Queensland Department of Health and the Department of Education and Training, designed to develop and test approaches to increasing physical activity in school time. The two main aims of the project are to increase the physical activity levels of students and the confidence and competence of their classroom teachers to make physical activity part of their pedagogy.

The PAIS is being delivered in two state education regions and in Central Queensland, 36 primary schools have signed on to the trial as CQ Sporty Schools. Trial schools are enacting site specific plans with action research mindsets. In Central Queensland it was decided that while physical activity was the product, sport should be the packaging and there is a focus on year three and four students playing modified sports to develop their fundamental motor skills and game sense.

A major finding of the project has been the challenges which have been encountered in its first year of operation. The first of these was the difficulty of attracting and retaining schools in the trial, despite generous funding and high levels of school autonomy. The second challenge was engaging Health and Physical Education (HPE) specialist teachers who have been marginalized in many schools. Finally there has been the challenge posed by the complex curricular environment in which the priority pendulum hovers over the core academic subjects.

This paper is a discussion of the major challenges to increasing physical activity in school time encountered in the CQ Sporty Schools project and the strategies that have been used to attempt to overcome them. It is to be hoped that successful strategies may be transferable to other contexts where sedentary behaviour is being targeted in schools settings.

Introduction

The CQ Sporty Schools project is funded under Queensland Health's *Healthier Happier* initiative, which aims to reduce the percentage of overweight Queenslanders from the current level of 65% through health and fitness promotions (Queensland Government, 2015). Numerous studies have found that the school setting is ideal for the promotion of physical activity (British Heart Foundation, 2013; Global Advocacy for Physical Activity, 2011; Heath and Parra et al., 2012, p.275; Kahn et al., 2002) due to its mandatory nature. Additionally there is evidence that physical activity has the potential to positively impact school outcomes. Gains in academic performance, concentration, memory and classroom behaviour have been attributed to physical activity (Cotman et al., 2002; Mahar et al, 2006; Strong et al., 2005, p735; Trost, 2007). Positive associations have also been proven between aerobic capacity and Body Mass Index and achievement in reading and maths (Castelli et al., 2007, p 250). Additionally it has been found that allocating up to an hour of

physical activity a day does not negatively affect academic performance (Trudeau et al. 2008). Indeed, in his riveting TED talk "Run, Jump, Learn: How exercise can transform our schools" American neurologist John Ratey MD concludes that "the more fit the child, the better learner they are," (2012, 10:01) and urges educators to "get students out of their seats and moving." (11:36). In Central Queensland, choosing sport as the context for physical activity has the potential to provide a pathway to community sporting activities as well as being culturally appropriate to Australia: "The land where sport is sacred" (Lawson, 1892, para.3.).

CQ Sporty Schools is designed to promote the development and sharing of innovative, tailored strategies and approaches designed to make it easier for schools and teachers to regularly incorporate physical activity for children into school time. The initiative is informed by the Smart Moves program which mandated physical activity in Queensland state schools from 2009-2011. This program successfully increased physical activity in schools and the collective responsibility of staff to deliver it (Education Queensland, 2012, p.5). It achieved this through a minimum of two hours per week of prescribed, moderate intensity, physical activity, the professional development of teachers to deliver the program and community partnerships (p.5). However, the evaluation of Smart Moves identified curriculum pressure as a significant barrier to physical activity in school time. Further, it recommended that future physical activity initiatives "may benefit from increased flexibility that enables school based decision–making and approaches that are tailored to the school, student and community context." (p.5).

The CQ Sporty School project is trialling site specific physical activity initiatives in 36 schools which represent a cross section of the large and varied Central Queensland education region (appendix 1). The total enrolment at all trial schools is almost 12, 300 students of whom 4,854 are the target cohorts: year three and four. An estimated 300 classroom teachers of year three and four are the group whose competence and confidence to teach sport is being targeted. End of term reporting from the trial schools shows 90% of classroom teachers were judged by CQ Sporty School coordinators (usually HPE specialists) to be either moderately or extremely competent to lead physical activities compared to a rating of 43% six months earlier. The external evaluation of the CQ Sporty Schools project by the University of Queensland which will comprise pre and post teacher and student surveys and student and teacher interviews, will gauge not only the project's success but also comment on the likelihood of its legacy. This paper aims to describe the challenges that have arisen in the implantation of the CQ Sporty Schools project and the strategies which have been used in an attempt to overcome them. The data being discussed are the project manager's reflections on the process and reporting and feedback from project schools.

Findings and discussion

Challenge 1: Attracting and retaining schools in the trial

A pool of eighty primary and combined primary and secondary schools was initially invited to nominate for forty positions in the CQ Sporty Schools project. Despite positive endorsement by our Regional Director and generous funding offers, nominations were scant and each eligible school

principal was contacted in an attempt to increase interest. Principal reticence could be attributed to national testing in maths and English incentivised by Queensland's $794 million Great Results Guarantee program for schools that ensure their students achieve the national minimum standards in literacy and numeracy (Queensland Government, 2014). These drivers have sent the school priority pendulum swinging strongly towards the core academic subjects. At its most extreme, this lead to a principal responding to the offer to become a CQ Sporty School with: "When NAPLAN measures BMI, give me a call!" Happily 32 schools did not share this view and nominated for the project of whom 30 were successful.

The strategy used to attract schools to the trial when it was reopened for second round nominations at the end of 2014, was to share positive feedback from current project schools. Comments such as this and similar positive word of mouth led to six successful nominations:

> Sporty schools has given staff a framework to develop their capacity to engage year 3/4 students in organised team sport. We have also noted that our P&C and parent community are beginning to engage with the sporty school agenda in a variety of ways. Firstly, there are a growing number of parents assisting to find sponsors for the growing of team shirts required for our ever increasing school teams. Secondly, parents are showing willingness to come and assist with running organised sport, both in and out of school. Thirdly, we have had parents join with other community organisations to provide sporting opportunities including boot camp etc. We attribute this to the increased awareness of the benefits of team sport through the Sporty Schools initiative. (Northview State School, September 2014)

Attracting schools to the trial was a vital but preliminary challenge to be met and strategies to retain schools and maintain engagement have also been necessary. Scheduling goal setting conversations between the project manager, school principal and school based coordinator in which ISMART (Inspiring, Specific, Measurable, Achievable, Results driven and Time bound) goals are set at the beginning of each term and assessed at the end, has proven to be productive. Maintaining an action research mindset and respecting school autonomy at all times, has encouraged school staff to report on what has worked and has not been successful.

The final strategy has been to offer project schools positive publicity for their initiatives. Case studies of best practice showcase four schools in short vignettes available to all Queensland State Schools via their online portal: The Learning Place. A monthly newsletter publicizing regional physical activity opportunities and highlighting a sporty school initiative has been sent to all schools and you tube clips featuring schools and their staff are in production. Attracting schools to the trial and maintaining their engagement has been a major challenge requiring a range of strategies to overcome, but solutions to this challenge have allowed targets to be met.

Challenge 2: Engaging HPE specialists

The original model for the PAIS project in Central Queensland region was to employ a project manager to oversee coordinators based in region's three largest towns. However, there was a risk that external coordination would deliver solutions rather than involve stakeholders in finding them.

It is also a deficit model which presumes that HPE specialist teachers cannot, or will not advocate for their subject in their own schools. This mindset can attributed to the introduction of one hour per week of non-contact time for primary and special school teachers in 1995 (Department of Education Training and Employment Library Services, 2014). HPE and music teachers usually provide this time and many became peripheral members of their school staff as a result, operating independently with no expectation that their work would be reinforced by classroom teachers. It can be argued that the marginalization of HPE teachers in Queensland is also demonstrated by their learning area's relegation to third and final stage of Australian Curriculum development (Australian Curriculum Assessment and Reporting Authority, 2013, p.4) quarantining them from Australian Curriculum conversations in their schools. However, the decision by Queensland State Schooling* to allocate recommended times for all subject areas except HPE (Appendix 2) would suggest to some that elements of the HPE curriculum are discretionary.

**Formerly Education Queensland*

Adopting a strengths based approach which seeks to mobilise the resources already in a school rather than import external capacity (Rapp, Saleeby & Sullivan, 2005) was a strategy chosen to engage HPE specialists. It is also timely as the Australian Curriculum HPE is similarly informed by a strengths-based approach "Rather than focusing only on potential health risks or a deficit-based model of health…." (Australian Curriculum Assessment and Reporting Authority, 2014). As a result the project is being internally coordinated by HPE or similarly skilled teachers and their principals with the support and oversight of one regional manager. This has led to context specific approaches such as: an emphasis on games played in the Philippines at a school with a large Filipino community, a volleyball focus where the nearby high school is a volleyball school of excellence and before school activities at a school which uses sport to encourage attendance. The best proof of this approach is when it leads to a collective responsibility for physical activity in a school as indicated by feedback such as: "… The classroom teachers are getting excited and are implementing weekly physical activity sessions. They are learning new games and implementing them. They are asking the P.E teacher for more equipment. The classroom teachers are more independent and are leading the sessions and are not relying on the P.E. teacher as much…" (Allenstown SS, December, 2014)

Challenge 3: The Complex Curriculum

School education is preparation for adult life. The Queensland Department of Education and Training's Strategic Plan 2014-2018 reinforces the breadth of this task stating its purpose as "Providing high quality learning and skilling focused on preparing Queenslanders with the knowledge, skills and confidence to participate effectively in the community and the economy." (2014, p.2) The Australian Curriculum details this knowledge and skills, the delivery of which is the core purpose of teachers. But particularly in government schools, education is open to public pressure resulting in many competing priorities. Interestingly, a report from New South Wales' Chief Inspector of Schools which was published in the Sydney Morning Herald in 1908 reinforces that external agendas creating complexity in education, is not a modern phenomenon: "The fact is

that the curriculum of the primary school represents the many diverse interests of modern civilisation, and while that remains as it is we shall have the apparently overcrowded curriculum." (1908, September 1).

Making the case for principals to find room in the curriculum for extra physical activity has required a number of strategies. Budgetary decisions which allocate most of the project funds to school grants reportedly moved this project up the priority ladder in trial schools. This strategy reinforced school autonomy to make spending decisions to support their site specific plans within an acquittal framework.

When school reporting showed that 50% of all barriers to the project in schools was teacher time constraints, Brain Break resources for short (3-5 minute) reprieves from learning were developed. This strategy was aimed at providing cumulative physical activity benefits and kits of indoor appropriate equipment and activity cards were offered to all schools. Staff professional development materials showing the associated academic and behavioural benefits of brain breaks were also supplied. As yet no reporting has indicated that this has gained traction in schools. However, schools are reporting that the strategy of putting sporting equipment kits in classrooms removes a time and effort barrier and is increasing the frequency of classroom teachers playing sports with their students.

The collation and comparison of data on school attendance, behaviour incidents and NAPLAN results was another strategy used to make the case for physical activity in school time. Although currently only an interim data capture has been completed, it shows trial schools level with or above like non-trial schools in all areas except numbers of sick days due to illness. In the year 3 writing task, trial schools are showing an improvement as compared to non-trial and Australian schools and this will be further considered in light of 2015 data. Lunch time behavior incidents are also significantly lower for the target cohort (year three and four) than for year 2 and 5 students in 2014 than prior to the trial in 2013. Although these data comparisons are very much interim, they do indicate that trial schools are not being disadvantaged by spending extra school time engaged in physical activity. The final data report will be shared with all principals in the region.

The final strategy is the introduction of reciprocal peer reviews. Although this is still in the planning stages, it is anticipated that schools preparing from a visit from colleagues are more likely to prioritize Sporty School activities. As this process has a professional development rather than an evaluative focus, schools are asked to identify their most successful strategies and individual barriers and to have collegial conversations about the same. As such this strategy has the potential beyond maintaining the worth of physical activity in a complex curricular environment.

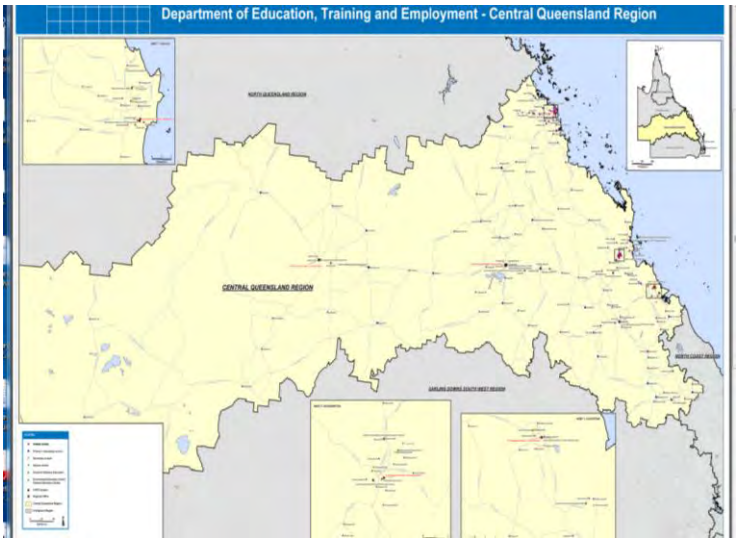
Conclusions

This project represents a significant investment by the Queensland Department of Health and the challenges described could potentially have had a large negative impact on the project's outcomes. The strategies which have, to date, successfully overcome the challenge of attracting and retaining schools in the trial are maintaining focus with goal setting conversations, creating positive publicity

opportunities for project schools and sharing case studies of best practice. Embedding a strengths based approach has successfully engaged HPE teachers and internal coordination of the project has allowed site specific plans to be responsive to local need and opportunities. The barrier presented by the complex curriculum which was shown to be far from a modern phenomenon, was also identified in the evaluation of the state wide physical activity project: Smart Moves. Ensuring that the smallest possible amount of project funds were spent on administration and giving schools autonomy in their grant spending decisions, has been a successful strategy to overcome this barrier. At this point the Brain Break resources are not being widely used. However, this is a higher order strategy which presupposes that teachers would see the benefit of punctuating their day with physical activity rather than just adding it on. It represents a pedagogical shift for which teachers may need far more time and evidence and should probably be considered unsuccessful at this time rather than unlikely ever to succeed. The data strategy will be inconclusive until 2015 data is added to the picture. It does however, indicate that allocating extra time to physical activity does not have a negative effect of attendance, behaviour or NAPLAN results. Peer reviews have not commenced and so the success of this strategy cannot be judged at this time.

Graduating students who are as literate and numerate as possible should be the first priority of educators. However, to overlook the contribution that physical activity can make to this outcome is to put down a powerful tool. Many challenges have been encountered in the delivery of the PAIS in Central Queensland and no doubt more will arise. In a school climate of data dependence, curricular change and the narrowing of educative focus to its core of literacy and numeracy, a case for maximising opportunities for physical activity in schools is sometimes necessary. Every effort is being made to ensure that the CQ Sporty Schools project overcomes barriers to help make this case.

Appendix 1



Central QLD Education and Training Region (2014)

Appendix 2

Recommendations for schools[1]

It is recommended that schools allocate the following hours for the listed Australian Curriculum learning areas/subjects (Table 1) to all students in each year of schooling from Prep to Year 10:

Table 1

	Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	(40 weeks)										(38 weeks)
English	280	280	280	280	240	240	240	Up to 240[2]	Up to 140[2]	Up to 140[2]	133
Mathematics	200	200	200	200	200	200	200	Up to 200[2]	Up to 140[2]	Up to 140[2]	133
Science	40	40	40	70	70	70	70	100	100	120	114
History	20	20	20	40	40	40	40	50	50	50	48
Total hours per year	540	540	540	590	550	550	550	590	430	450	428
Health and Physical Education	School-based decision — up to 80 hours										

Recommended curriculum time allocations for Queensland state schools 2014-2016 (Department of Education, Training and Employment, 2014, p. 1)

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Experiential research inspired sport science pedagogy

Petersen, C., and Clarke. J.

School of Sport and Physical Education, University of Canterbury, New Zealand

In secondary school science education, traditional teacher-centred pedagogies have disengaged many students who find this style not conducive to understanding scientific concepts, and limited in opportunities for in-depth discussion of ideas being introduced. These observations are independent of whether the students found the topic itself interesting (Lyons, 2006). Sport Science has a multi-disciplinary structure, bringing together numerous distinct scientific disciplines. A coach needing to solve a problem specific to an individual athlete is likely to require solutions that are multidisciplinary in nature (Williams and Kendall, 2007). Therefore students training as coaches need relevant knowledge acquired across the sport sciences. Through application of student-centred pedagogies, sport science can be regarded as a humanistic science (Schmidt-millard, 2003) with an emphasis on educating human beings. The current reflection details the strengths of a final-year undergraduate sport science paper (a compulsory component of a four year course that graduates PE teachers), by incorporating both the course facilitators' thoughts and the anonymously surveyed perceptions of course participants. An additional aim was to explore student responses to a change in the teaching style used in sport science courses in the University of Canterbury (UC) School of Sport and Exercise Science. Four students participated in semi-structured interviews that explored their impressions of sport and exercise science teaching using direct teacher-centered pedagogies in the penultimate year of their studies, and a more experiential pedagogy in their final year. Interesting, insightful and informative views have been gained from participants of similar courses (McCullick, et al., 2005). The facilitator employed several student engagement strategies including an "application-led" model, successfully practiced in Scottish Physics classes (Lyons, 2006), and a research inspired experiential learning model that integrated multiple disciplines of sport science. A majority of participants believed the courses provided effective opportunities for active participation (83%) and two strong themes that emerged were firstly; the interesting relevant lecture content, and secondly the enjoyable lab sessions. It is important that regular review and improvement in the sport science praxis is undertaken to help ensure the degree programme graduates are effective, knowledgeable and are ultimately capable of providing competent instruction to their subsequent athletes and students.

Key words: Experiential learning, engagement, pedagogy

Introduction

Experiential learning (Kolb, 1984) refers to a pedagogical model whereby students undergo practical experiences, gather data and observations about the experience, then analyse that data and create their own understanding by assimilating that learned information into the prior knowledge they brought to their classes. Experiential learning is essentially a social learning theory (Daniels, 2012), building on shared experiences and the interpretations individuals build from them. Experiential learning also borrows from Piaget's model of learning and cognitive development

(Kuhn, 1979), whereby learning occurs as a process of adaption to experience, with each experience challenging the current understanding of the world held by the student. Learning, therefore, is the accommodation of the new experiences into an enhanced schema through a continuous process of reflection.

A key aspect of experiential learning theory which distinguishes it from traditional behaviourist and cognitive theories is the continuous process of adaption, experience and the uncertainty of specific knowledge. Knowledge is a process of negotiation with the environment and building understanding based on experiences and reflection on that experience. Current teaching strategies incorporate the full range of Mosston's Spectrum of teaching styles (Mosston & Ashworth, 2002), from traditional direct-style lecturing where the teacher is the expert giver of knowledge, through to student-centered learning activities. With student-centered activities learning is facilitated, by providing an environment in which students can interact with their surroundings to explore artefacts and theories provided to give learning opportunities (Kolb & Kolb, 2005).

Courses in the UC School of Sport and Physical Education (SHPE) are surveyed regularly using anonymous survey tools by the UC Centre for Evaluation & Monitoring research unit. In 2013, course survey returns for several sport and exercise science courses received relatively low rankings (below 4 on many categories on a scale of 1 to 5), with several students reporting that they did not find the direct teaching style of the courses strongly engaging. In 2014 a more experiential and project-based style of delivery was adopted. Students from the Bachelor of Education (Physical Education) (BEdPE) and the Bachelor of Sport Coaching (BSpC) degree programmes completed sport and exercise science courses in their penultimate year in 2013 and in their final year in 2014, so were exposed to both pedagogical styles. This paper reports on the results from course surveys and semi-structured interviews (conducted with participants from both courses). See appendix for semi-structured interview questions.

Method

Analysis of anonymous course surveys (n=24, 45% response rate) conducted through the UC Centre for Evaluation & Monitoring research unit provided the initial summarised data of student views regarding generic aspects of specific sport science courses. In addition, four students (3 females, 1 male) were interviewed using a semi-structured interview to explore their understandings, impressions and experiences of teaching pedagogies in sport and exercise sciences. The four students (BSpC n=1; BEdPE n=3) were all 22 years, 4 months old (coincidentally born within 11 days of each other) and they were recruited through emails sent to final-year students. Before being interviewed all participants were fully briefed on the procedures, data collection and handling techniques being used and all provided signed informed consent. Participants were informed that participation was voluntary and that they could withdraw at any stage. The course lecturer was not involved in the interview process, and was blind to which students participated. The co-researcher conducted all interviews. University ethics approval was granted for this study.

Each participant was interviewed using an 8-question semi-structured interview that was

recorded using the iPad application Notability (Ginger Labs, 2014). Questions focused on the differences between the last two years sport science courses, and the opportunity for practical learning opportunities. A semi-structured interview methodology was employed to ensure similar areas were explored with each participant, while enabling the interviewer to probe further to gain clarification and more information in regard to specific answers from students. The recordings were transcribed, checked for authenticity (transcripts were emailed to participants who checked them for accuracy and all participants responded with their approval) by the interview participants, and then coded for recurring themes in the responses. Themes emerged from textual analysis by the researcher who conducted the interviews and transcribed all interview recordings. Themes identified included:

- Creation of a structured environment – 1hr teaching episode, 2 hour lab episode which started with a 10min recap of the lecture, practical sessions often student-driven
- Practical sessions– student-led investigations creating memorable "events"
- Participation - many comments around opportunities to participate and the participation of others.
- Analysis of group data – and some areas of discomfort with how this was handled (individual data shown, or small-group data with some high-performing students)
- Lack of understanding of the concept of "Experiential Learning" – this was a concern given the strong pedagogical focus of the courses these students were about to graduate from
- Desire for stronger connection to students' own sporting contexts.

Participant confidentiality was ensured by having all interviews conducted by the co-author, who was not teaching any of the participants. The co-author transcribed the interviews, and withheld all information, from lecturing staff on both degree programmes until after the final results for the students were confirmed and released. This was implemented to provide further confidence for the students that their responses could in no way influence any marking decisions from any staff currently teaching them. In no case was any personal information about students, or identities of participants quoted, divulged to other parties.

Results

From the anonymous course surveys (utilised a 5-point scale from 1-strongly disagree to 5-strongly agree) the majority of the course respondents believed the courses provided effective opportunities for active participation (83%) (mean score 4.33 ± 0.98) written comments included; 'Awesome lab opportunities and group work, amazing tutorials and lectures', and 'I think all of the labs were very student focused and allowed everyone to get involved and participate. Was cool to be a part of some of the experiments myself and see how my physical skills faired compared to the rest of the class'. Furthermore, 86% reported that the lecturer stimulated their interest in the subject area (mean score 4.29 ± 0.91). Written comments included 'I really enjoy the science side of sport so the labs and equipment we used in the course just made me more interested in this subject. It was cool to use new equipment and see how testing procedures are carried out in the labs', and 'very interesting

material that was very current in 2014'. Also 'Favourite paper this year' and 'Very passionate about the subject which makes the students passionate'.

In the section below, we review the results of the semi-structured interviews, reporting on recurring themes; specifically the creation of a structured environment; Practical sessions and participation opportunities. The two-part first question sought to determine if the students had noticed any change in the teaching style between their penultimate and final year sport and exercise science courses. This was followed by a direct question about noticed differences in the practical content. An unanticipated challenge for the students in this part of the interview was their struggle to remember their previous year's courses. Since the interview was semi-structured, there was the opportunity to follow up with more in-depth questioning. However since this study was with particular reference to the teaching in 2014, there was no in-depth questioning around the 2013 courses. In the interviews there were three specific instances of material being mentioned as being memorable, but also three instances of students struggling to remember aspects of the 2013 teaching – they had activities or episodes from the more practical courses which were particularly memorable, and found the structure easier to work within (clearly laid-out sessions of instruction/designing/doing), which they did not recall having been offered the previous year. It is certainly a point worth further investigation in future work, and supports the notion of creating memorable events, or "hooks" to help remember course content (see discussion at the end of the article).

The students identified that the courses in 2014 (their final year) were "more…student-directed, student-centered" (participant 1), with "more…interaction with us" (participant 2) and the course was "a lot more practical" (participant 3). A recurring theme to discussion of practical components of the course was the implementation of project-based components, with students receiving a one-hour lecture to set up foundational knowledge, followed by a two-hour session where "we had to do all the work and come up with our own research questions…for the labs" (participant 1). The students appreciated learning the information, then having it reinforced through the practical activities. "Because you designed the experiment, you were … relating the content that you'd just learnt" (participant 2). The labs linked well into the lectures and were relevant to what we were learning (anonymous course survey participant).

The next set of questions explored the practical content of the final-year sport and exercise science courses, enquiring after the involvement of students, interest and enjoyment, and the perceived effectiveness of learning through practical activities. The responses here were generally very positive ("it made it more exciting", participant 2), identifying active involvement as being motivating with practical activities providing effective learning experiences.

> This year was really good because you got to use the wind tunnel, ...endless pool, a whole different range of resources, …doing like the ice-baths and actually up-to-date topics really helped (participant 1)

The lab sessions provided experiences that students used to help access memories of important facts during the exams. Participant 1 commented, "…it's creating connections when we get to the end" (), "… because you designed the experiment, you were… relating the content that you'd just learnt … Whilst participant 2 recalled "So I found myself, when I was studying, 'what was hydrodynamics, oh that's right, that's when [another student] was swimming, and it was more like relatable, you definitely remembered it". Another participant noted "It's factual evidence that you can remember and that's it" (participant 3). The students involved in the studies were all training to be either sport coaches or physical education teachers. The opportunities to become involved in practical activities were appreciated from the point of view of being able to experience what might be taught in the future "You know, if you don't try it yourself, then you can't really practice what you preach. You can't teach something you haven't done before… it's absurd." (participant 3), and students also noted "…when else are we going to have an ice bath experiment or taking bloods, and that kind of thing, which was really cool" (participant 1).

There were several concerns raised around the actual levels of participation, however, as many of the practical activities were reported to only involve a handful of people. While many activities offered opportunities for "challenge by choice" (participant 1), the non-compulsory nature of these activities was questioned both from the point of view of having a few 'experts' generate results and therefore make lesser athletes uncomfortable "I didn't want my results compared to them or published in front of the class" (participant 4). The small sample numbers completing experiments (in group projects and when only small numbers volunteered to participate in whole-class experiments) led to uncertainty in the results, and loss of confidence in some experiments "I think that would help the overall statistics for the group because obviously with 6 people you're not going to get consistent results" (participant 3), "it was kind of inconsistent. I'm one of those people that needs to know the definite answer. I think some people were a bit confused about what other people found" (participant 1). This was balanced by positive comments about small-group activities by the same participant. "You couldn't really hide either…Yeah, it was really good, really small groups, so everyone had a chance to learn" (participant 1).

> There was also some frustration expressed about non-participation of peers "There should be more of a requirement…there are some that don't participate at all, some of them barely ever…" (participant 3).

This reflects two issues involved in running practical, project-based sessions – encouraging students to participate, but also providing learning opportunities where more than a handful of students *can* participate. "where I was involved, like the sprint stuff and all of that where everyone was involved, [I[definitely learnt stuff. But the stuff where we only had like 5 people or limited, I don't think I would learn anything…I learn definitely practically…I'm not actually involved in it then I probably don't learn from it" (participant 4). The small numbers of those actively exercising in some activities were due to resource and timing constraints (e.g. wind-tunnel experiments) or, in some cases, due to the perceived challenge of the activities "you kind of dreaded what might happen…I nearly threw up in the Beep test" (participant 1). Course participants had the opportunity

to participate in all activities, while participants that decided not to volunteer to exercise in a particular experiment were still actively involved in the data collection process.

The answers above reflected the experiential nature of the learning opportunities provided, but showed that there was space in the pedagogical approach to further enhance the opportunities for learning. The implementation of experiential learning activities, while apparently popular with students who did participate in the activities, needs to further evolve to enable full participation at a level where students are challenged, but feel they can meet those challenges.

When asked "Does the teaching style make you want to turn up to the next lectures?" students were generally very enthusiastic, expressing interest in finding out what the week's activities would be. "Um, when do you really look forward to a lecture? (laughs). So, yes. Um, it kinda did because you knew that you were going to challenge yourself, but then you kind of dreaded what might happen, if you had to do the Beep test or something. Yeah, it was good." (participant 1)

The lecturer recorded scenes from the practical sessions and made videos to summarise the activities for later review. These were very popular, and caused some anticipation of the following week's lectures. "you're always excited and especially that next Monday and you're like 'oh, I wonder if he's made bloopers of that experiment yet', … because we all did a range of experiments… which was quite cool" (participant 2).

Discussion

Student responses to the interview questions confirmed the students experienced activities and opportunities consistent with the pedagogical approach of experiential learning. Furthermore, an insight was gained into how student engagement was affected through experiential learning in the sport and exercise science courses. A number of themes recurred in the student responses to questioning around their practical experiences in the final-year sport and exercise science courses compared to penultimate-year experiences. The main themes that emerged were specifically interesting relevant lecture content, and enjoyable lab sessions."

The students noticed a significant enhancement in the available practical experiences in their final-year courses, and cited a clear structure to the presentation. The implementation of the practical elements was primarily through student-led experiments, providing opportunities to explore chosen aspects of the theoretical content from the week's lecture. In comparison with the previous year, the efforts by the lecturer to introduce experiential learning opportunities into the sport and exercise science courses were noticed and appreciated by all students.

The practical activities included whole-class "participation by choice" and small-group student-led experiences. The whole-class activities were less popular as only the most able athletes had the confidence to volunteer, while others were uncomfortable at seeing their results presented to the class in comparison with the top performers. With small class sizes, despite data being displayed anonymously it is relatively easy to determine which participant the data originated from.

Displaying only mean and standard deviation data or alternatively expressing data using percentage changes may hide the absolute data, which could be a method the lecturer could use to address participants feeling uncomfortable at seeing their data.

The most positive comments around the practical learning opportunities were with reference to them providing confirmation of material covered in lectures, and also providing 'hooks' for helping to remember course content. Students reported feeling involved in the course, motivated to attend sessions, and curious each week about what activities they would have the opportunity to participate in. Negative comments centered on the times when only limited numbers of students could participate in activities – reinforcing the statements concerning involvement in practical activities helping learning.

Finally, feedback from student interviews supports the decision of the lecturer to change the pedagogical approach for teaching sport and exercise science from a predominantly direct style of delivery to one with a strong experimental focus.

Implications for practice

Student interview responses indicated that the decision to implement an experiential learning pedagogy had been generally positively received, providing activities which students rated as both engaging and effective for learning. Students appreciated opportunities to explore the material that had been introduced in formal lectures in a practical setting, and commented enthusiastically on the opportunities they had to design some of their own experiments. This feedback supports the continued use of this teaching style in sport and exercise science courses.

To further enhance engagement in courses in these programmes, lecturers would be advised to survey students at the start of the course to discover their movement interests. It is acknowledged that with diverse movement interests, it may be hard to closely match every student's interest. Nevertheless, the lecturer should attempt to relate concepts and practical activities to as many of the student's movement interests as possible throughout the course. There are several strategies available to combat the problem of low participation in practical activities. The lecturer could simply require participation in a certain number of practical sessions to be eligible to pass the course, with participation being actually taking part in physical activity, rather than simply recording results of other athletes. Where resourcing and time limit the opportunities for participation, this could be addressed at a School level (providing further resources, investigating class timetabling of "steamed" sessions). Furthermore, the logistics of incorporating even more student-directed tasks should be investigated, facilitating having students participating in the main activity or variations of the activity theme, at different times.

Overall, students found the experiential learning style more engaging and perceived that it impacted positively on their learning, providing a more motivating lecture experience with significant physical experiences which they could use as "hooks" to retrieve memories of key learning objectives. All students interviewed preferred the experiential learning pedagogy to direct teaching, and all commented positively about the change in teaching strategy.

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Appendix – Semi-structured interview questions

1. a. What differences, if any, have you noticed between how your sport and exercise science courses were taught this year compared to last year?

   b. In what way did these differences affect you or your perceptions of your sport and exercise science courses?

2. Can you please comment on any differences you have noticed in terms of practical learning opportunities in your sport science classes this year compared to last year?

3. How have you found the practical content of the course/s this year? – Please answer in the following areas:

a. How much of the course content involved you taking part in practical experiments and activities?
b. Engagement – did you find the practical activities interesting/enjoyable? (why/why not?)
c. Learning – do you feel you are learning effectively through practical activities?
d. Does the teaching style make you want to turn up to the next lectures?

4. Do you have any further comments relating to this discussion?

Self-directed learning of TGfU and The influence of mentor teachers during practicum in Portugal

Bianca Aguiar & Professor Richard Light
University of Canterbury, New Zealand

This paper draws on a study of six Portuguese teachers (three pre-service and three beginning), who had developed most of their knowledge of TGfU informally, and their attempts to implement it on practicum with a focus on the influence of their mentoring teachers. They had limited exposure to TGfU in their PETE program but had been interested enough to pursue a better understanding of it as self-directed learners who were confronted with the gap between theory and practice. This article investigates how their development of TGfU teaching was influenced by their experiences of school practicum with a focus on the influence of their mentor teachers. For two of them, supportive and knowledgeable mentors had been pivotal to their positive attitudes toward TGfU and confidence in their ability to tale a TGfU approach. For the other four, their theoretical knowledge of the approach was found wanting when faced with unsupportive mentor teachers who had little knowledge of it.

Key words: TGfU, pre-service teachers, beginning teachers, mentor teachers, support, physical education

Introduction

A number of studies have investigated teacher and pre-service teacher experiences of attempting to put what they have learnt about Teaching Games for Understanding (TGfU) and other GBA (Game Based Approaches) in Physical Education Teacher Education (PETE) programs into practice in schools (Diaz-Cueto, Hernandéz-Alvarez & Castejón, 2010; Light & Butler, 2005; Wang & Ha, 2009). The pedagogical challenges involved in the TGfU approach (see, Roberts, 2011) are often exacerbated by a lack of support, or even resistance, from mentoring teachers (Wang & Ha, 2009). While these challenges are daunting enough they are amplified for pre-service or beginning teachers who have not had the benefit of substantial exposure to, and understanding of, TGfU in their Physical Education Teacher Education (PETE) programs (Livingston, 2012). Given indications of the increasing reliance of many teachers upon informal learning (Armour & Yelling, 2007; Livingston, 2012), this presents another aspect of the challenges involved in putting GBA into practice that deserves research attention and which this article addresses.

This article focuses on a study on six Portuguese teachers (three pre-service and three beginning teachers), who had developed most of their knowledge of TGfU informally through self directed study and attempts to adopt the approach during teaching practica. It investigated the ways in which they learnt about TGfU, how this shaped their experiences of trying to implement it during practicum and how this influenced their subsequent attitudes

toward it and use of it. The six participants had limited exposure to TGfU in their PETE program but had been interested enough to pursue a better understanding of TGfU as self-directed learners. The study investigated their understanding of TGfU, how they developed it, and their experiences of trying to implement it on practicum. Positive support from a mentor teacher on practicum arose as the critical difference between participants' who can be seen to have been successful and those were not and this is the focus of this article.

The challenges of implementing TGfU

TGfU focuses on the game by placing learning in small sided, modified games and promotes thinking and dialogue through emphasising questioning (Light, 2013). It has been shown to hold much appeal for pre-service teachers who typically struggle to meet the challenges involved in its use (see, Wang & Ha, 2009). It requires considerable pedagogical skill, a good understanding of games, an ability to develop and ask appropriate questions at the appropriate time and the ability to select appropriate game forms (Chandler, 1996; Light & Georgakis, 2005; Howarth, 2005; McNeill, Fry, Wright, Tan & Rossi, 2008; Turner, 2005). These are all significant challenges for teachers who are accustomed to a highly structured, teacher-centred approach to games teaching that reduces their complexity to the mastery of technique.

Learning to teach on practicum

The literature consistently identifies the difficulties developing teachers face when trying to develop TGfU on practicum due to mentoring teachers' lack of knowledge of, and support for, it (McNeill, M., Fry, Wright, Tan, Tan & Schempp, 2004; Tan & Tan, 2001; Wang & Ha, 2009). Unsupportive and sometimes hostile environments typically lead to the abandonment of innovative practice and adopting the 'path of least resistance' (Bullough & Baughman, 1996; Macdonald & Glover, 1997; McMahon & MacPhail, 2007; Wang & Ha, 2009), and learning to teach using TGFU in such reproductive environments can make it very difficult to maintain enthusiasm for innovation (Light & Butler, 2005; McMahon & MacPhail, 2007; Wang & Ha, 2009). In their study on pre-service teachers' implementation of TGfU on practicum in Hong Kong Wang and Ha (2009: 424) a small group abandoned TGfU because of a "lack of support from cooperating teachers and the short period of teaching practicum".

Self –directed, informal learning

In this article we appropriate Knowles (1975) term 'self-directed learning', as a form of informal learning. We use it in its broadest possible sense as a reference to the informal learning engaged in by the participants in this study but which was largely intended by them and with much of it (but not all) consciously pursued:

In its broadest meaning, 'self-directed learning' describes a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identify human and material resources for learning, choosing and implement appropriate learning strategies, and evaluating learning outcomes. (Knowles, 1975, p. 18)

We use the term here to capture the ways in which, although learning informally, the participants took the initiative and responsibility for their method of learning and for the outcomes. It is however, not a reference to the teacher's role as one of scaffolding, guiding and advising apart but this was apparent ion the case of the two participants who were mentored by teachers on practicum.

The study

The study aimed to answer the central research question of how does knowledge developed informally as self-directed learners assist putting TGfU into practice and how mentors influence their attempts?

Site and participants

This study was conducted over two months during 2014 in a large city in Portugal. It focuses on three physical education pre-service teachers in their final year of a Masters in Teaching of Physical Education course in primary and secondary schools and three physical education teachers in their first two years of teaching with ages ranging from 21 to 25 years. They all came from the same PETE program in which they were briefly introduced to TGfU but had no opportunity to teach using it before practicum. The six participants, taught from first to twelfth grade classes across five schools on practicum.

All participants are referred to using pseudonyms to protect their anonymity. The three pre-service teachers were: Philip (22 years), John (23 years), and Victoria (21 years).

The three beginning teachers were: Anna (25 years), Mary (23 years) and Robert, (23 years).

Data generation

Data were generated through a questionnaire followed by a single semi-structured interview.

Questionnaires.

Participants completed a questionnaire at the beginning of the study to provide background knowledge about them and which were used to guide the design of the interviews and to provide some triangulation.

***Interviews*.**

One, in-depth, semi-structured, one-on-one interview of 30 minutes duration was conducted with each participant to provide understanding of how school contexts had influenced the participants' development of TGfU teaching as self-directed learners.

Data Analysis

Inductive content analysis was adopted to make replicable and valid inferences from the data generated that is relevant to their specific context as a means of generating understanding and new insights (Krippendorff, 2004). This involved reading and re-reading of interview transcripts to form initial categories within which data were placed with weak categories abandoned and strong categories developed through a process that lead to identification of first order themes and special characteristics and features (Polit & Beck, 2006). Member checking was used to assist in developing some trustworthiness (Merriam, 1998)

Results

All participants had come from the same PETE program in which they were first exposed to TGfU but in which it was not a strong feature. The six participants in the study had been interested enough to learn independently by following up on readings suggested in lectures and, in Robert's case, learning from an opportunity for independent inquiry into TGfU as part of an assessment task on action research. Anna was one participant who had benefitted from a supportive mentor teacher, and said that she had learnt most of what she knew about it from him. But for others their mentor teachers had either been unsupportive or had not allowed them to experiment with TGfU. The one aspect of practicum that most strongly influenced the ability of the participants to further their knowledge of TGfU and skill in adopting the approach was the mentor teacher.

The influence of mentor teachers

The participants' development of TGfU during practicum was acutely influenced by their mentor teachers' knowledge of TGfU and dispositions toward it. For most of them there was active resistance in schools with mentoring teachers not only failing to support their attempts at innovative practice but also not allowing them to teach this way:

> I didn't have the chance to experiment teaching TGfU in practicum. I wanted to try but I needed help because I did not know much about the approach but my mentor had a very rigid structure for classes based on teaching technical skills and I was not allowed to change it. He gave me the PE manual and said that I should follow it. (Interview, Mary)

This explicit opposition to TGfU by mentor teachers was a common problem for the participants. Philip was very keen to try TGfU was very excited about trying the TGfU

approach in practice but after his first lesson in a planned unit on TGfU his teaching mentor directed him to the manual:

I was at my first class of practicum and I started with a modified game called (10 passes game) to introduce handball. The students were divided in teams of three and they had to do a set of 10 passes to score 1 point for their team. The aim was to promote the understanding of movement and occupation of spaces since they were not allowed to dribble the ball. After that, I intended to do a game where the attacking team had an advantage in numbers but my mentor interrupted and pulled me aside telling that I should do a skill exercise like pass or dribble… After my class I talked to him and asked why I could not do what I intended to and he told me that I must follow the manual for PE, which emphasizes technique. (Interview, Philip)

For Mary, Philip and Robert their mentors had a negative influence on their development of TGfU in practice but they maintained an interest in it and intended to use it as practising teachers. In a study on Singaporean student teachers' attempts to develop their teaching of the Games Concept Approach on practicum, McNeill et al (2004: 27)"Over time, will this group of (student teachers) become change agents in their schools, or succumb to the 'washout effect'"? In the case of Mary, Phillip and Robert we suggest they would struggle without appropriate mentor support.

But the challenges that Victoria faced were enough to kill her fleeting interest in TGfU:

If we want to implement a new form of teaching we have to search information about it and apply it, by trial and error. As I said previously, I tried to use TGfU in a basketball class and it didn't work so I moved on and forgot the idea. (Interview, Victoria)

Victoria was easily discouraged because, despite some interest in TGfU, she believed that the teacher's basic role was to transmit knowledge to students. On the other hand, John and Anna had good support from mentor teachers that was pivotal in the development of their understanding of TGfU and their confidence in using it. Unlike Victoria, Anna's beliefs in teaching and learning aligned with TGfU pedagogy. She said that she was: …lucky to have a mentor that helped me during practicum and encouraged me to try new ways of teaching and learn from my mistakes. I had all the tools to do a good job (materials, space and guidance). The same did not happen when I was at my first year of teaching because I did not have a mentor to guide me and answer my questions nor the material and the space to implement TGfU. (Interview, Anna)

John also received good support from a mentor teacher but his observations of his peers' experiences lead him to believe that schools were generally unsupportive of TGfU: "…older and experienced teachers' training sometimes does not help the implementation of

this model. Some of them do not care, others have no training to help a pre service and inexperienced teacher to implement this model" (Interview, John).

Discussion

The challenges involved in developing TGfU in school practicum are similar to other innovations in teaching (Rikard & Beacham, 1992) and can make taking up the TGfU approach a 'risky' proposition and particularly when mentor teachers have no knowledge of it (Wang & Ha, 2009). The nature of TGfU pedagogy and the value orientations of pre-service and beginning physical education teachers can challenge practising teachers beliefs and values and promote resistance to it (Butler, 2005; Gillespie, 2011), making difficulties faced by most of the participants not so surprising.

This is likely to be more of a problem for pre-service teachers who have learnt informally and for whom there are gaps in their understanding (see, O'Leary, 2014). Most studies that have looked into pre-service and beginning teachers experiences of trying out TGfU in schools have focused on participants who are enrolled in, or who have graduated from, teacher education programs that emphasize it (see, Diaz-Cueto, et al., 2010: Wang & Ha, 2009). However, in the absence of formal learning opportunities, many practising teachers interested in adopting TGfU pedagogy have little option other than to teach themselves and rely upon informal learning opportunities such as sharing ideas with colleagues to learn (Armour & Yelling, 2007; Livingston, 2012).

The participants in this study had only a brief theoretical introduction to TGfU in their PETE program supplemented by some reading as self-directed learners. Four of them struggled to implement TGfU in practice due to a lack of opportunity to try it in an authentic setting. Bridging the gap between theory and practice in teaching is a critical issue for the dissemination of good ideas like TGfU that require guided and reflective practice through which developing teachers can form a practical understanding of method (Butler, Oslin, Mitchell, Oslin & Mitchell, 2008). In thus study having a knowledgeable and supportive mentor interested in helping developing teachers learn through experience seems to be the key to what can be seen as success in developing their TGfU teaching for Anna and John and what was sadly lacking for the others.

For Anna and John, supportive supervising teachers on practicum made a profound contribution toward their inclination to pursue a TGfU approach and to develop as skilful and thoughtful teachers. Given the challenges facing teachers who want to develop a TGfU approach (Jarrett, Eloi & Harvey, 2014), exacerbated by gaps in understanding arising form having to learn informally, it seems that Robert, Mary and Phillip's enthusiasm for TGfU would be unlikely to survive long without support with Victoria having given up on TGfU during the study. This contrasts with John and Anna who seemed motivated and successful enough to continue developing their TGfU teaching due to the support and guidance they

received from teachers at a critical time when theoretical belief is tested by the realities of teaching. Critical reflection is of central importance in the development of professionals such as teachers and coaches (Schön, 1983) with the opportunity to reflect upon practice and to engage in dialogue with someone more skilled and more experienced is what differentiated John and Anna's experiences from the others. Their mentors, not only supported and encouraged them but, also, engaged in dialogue with them. They asked them critical questions, which enabled them to learn through identifying problems, reflecting and coming up with appropriate solutions. This highlights the importance of mentoring teachers providing supportive environments for making practicum a positive learning experience for pre-service teachers (see, McDonald, 2004)

Vygotsky's (1978) concept of the zone of proximal development (ZPD) offers a useful way of understanding the pivotal role one mentoring teacher seems to have played in the positive development of John and Anna's learning to use TGfU. ZPD refers to the gap between the learner's ˙actual developmental level as determined by independent problem solving' and the higher level of ˙potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky, 1978). From this perspective, John and Ann's teaching skills (such as questioning) and practical understandings of TGfU teaching seemed to have emerged from interaction with their mentor teachers as 'knowledgeable others' (Vygotsky, 1978). This involved critical reflection on their teaching encouraged by their mentors, supported by their deep interest in TGfU and assisted by their inclination toward independent inquiry.

Conclusion

The focus of this article on participants who are self-taught highlights the increased challenges involved in putting theory into practice with knowledge developed informally and which is typically partial and incomplete to suggest that this is something professional development programs should consider. It also suggests the importance of opportunities for practice in authentic contexts and of interaction between developing teachers and more experienced and knowledgeable teachers. In the case of two participants in this study it seems to have had a very positive difference to the development of their skill, and understanding of TGfU.

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The Discourses of Disability and Disability Sports Coaching in Australian sport policy: Preliminary findings from contemporary Swimming Australia policy documents

Andrew Hammond, Deana Leahy & Ruth Jeanes
Faculty of Education, Monash University

In the contemporary moment, various government agencies (e.g. Australian Sports Commission: ASC, National Sports organisations: NSOs and State Sport Organisations: SSOs) approach sports coaching practice as something that can and must be regulated, controlled, shaped and turned to specific ends. Researchers have seldom analysed how the government has deliberately sought to direct the conduct of sports coaching. This study is concerned with how government agencies attempt to regulate the conduct of sports coaches in order to meet the specific policy outcome of increasing participation of disabled people in organised sport. By using Michel Foucault's genealogical analysis of political power-governmentality, this paper presents proposed theory and methodology from my PhD study that examined the discursive constitution of disability sports coaching as represented in selected contemporary Swimming Australia sport policy documents. Findings suggest that there are potentially confusing mixed messages in the various policies. The implications of this will be discussed. This study fulfils a gap in sports pedagogy research and aims to promote debate and discussion about the implications for sports coaches practice and broader sports pedagogy research community.

Keywords*:* Governmentality, Sports Coaching, Swimming, Sport Policy

Introduction

> The ongoing participation of people with a disability in both elite and community sport is an important part of that [sic] social inclusion and the Australian notion of a 'fair go'
> (Independent Sport Panel: Commonwealth of Australia, 2009, p. 149)

Governments in Australia and many other advanced liberal democracies believe that inclusion agendas can be realised by increasing participation in sport. The quote above clearly reflects such sentiments. Policy, then is an important element in realising the governmental sporting participation hopes for the nation (Stewart, Nicholson, Smith, & Westerbeek, 2004). With respect to the area of disability sport, key government policies such as the Independent Sport Panel's report 'The future of Sport in Australia', otherwise know as the 'Crawford Report' highlighted submissions that called for more governmental involvement in sport for disabled people. For example, the report recommended that:

> Appropriate levels of funding should be made available to community organisations to increase participation in physical activity by marginalised or isolated groups, such as people with a disability
>
> There is the need to ensure all sporting organisations adopt an ethos of inclusion for people with a disability.
>
> Better coaching for athletes with a disability is an area that needs improvement. There should be general inclusion of related training courses for coaches in all sports for people with a disability.(Commonwealth of Australia, 2009, p.43),

Such statements reveal to us, amongst other things what might be referred to as the 'official' government position on sport and disability. One of the key beliefs that underpins a great deal of policy in the present is the idea that societal attitudes towards disability have changed (see for example Council of Australian Governments, 2011; Darcy et al., 2011). Further to this, there is a long-standing historical dominant belief that the underrepresentation of disabled people in sport is a concern (Australian Confederation of Sports for the Disabled, 1992, 1998; Darcy et al., 2011). Granted this, many are of the view that participation of disabled people in community and elite sport is important. This belief circulates throughout the field. However this paper is interested in how government sporting bodies, via policy, situate disability sport and how this in turn shapes coaching.

Practicing inclusion

Considering the policy hopes for increasing, and ensuring, participation, there is a need to develop programs and practices that can help government realise these hopes. Some researchers argue that the improvement of coaching and 'attitudes' through 'educational interventions' will lead to 'better, more effective, and inclusive practice' and will in-turn solve 'the problem' of discrimination of disabled people in sport (Beyer, Flores, & Vargas-Tonsing, 2008; Conatser, Block, & Gansneder, 2002; Cregan, Bloom, & Reid, 2007; DePauw & Gavron, 2005; Flores, Beyer, & Vargas, 2012; Hutzler, 2003; McMaster, Culver, & Werthner, 2012; Rizzo, Bishop, & Tobar, 1997; Vargas, Flores, & Beyer, 2012). Most of this research is conducted by scholars who identify as Adapted physical activity researchers. This paper however departs from what might be considered to be 'the usual suspects; 'behaviorist', 'psychological' and 'quantitative' research and reports on a broader doctoral project that draws on poststructuralism to consider inclusion from a different frame. We want to suggest that there is much to be gained by our engagement with other theories and research methods. One of the reasons why we do this is because of the continual slippage we, and others, see between policy hopes and the realities of inclusion. For example recent research by Spaaij et al. (2013) have used qualitative findings to argue that "there is a discrepancy between the policy objectives of government and sport organizations and the way in which diversity is understood and responded to in practice" (p.346). Similarly a large

body of evidence suggests traditional formal coach education continues to fail to influence and inform practice (c.f: Chesterfield, Potrac, & Jones, 2010; Cushion, Armour, & Jones, 2003; Cushion et al., 2010; Marchant & O'Connor, 2012; Piggott, 2012). Accordingly we are interested to engage differently with the concepts of participation and inclusion and how governments seek to realise such imperatives via disability sport. We are particularly interested to consider the place, position and function of coaches within this.

Governing participation - methodology

This paper presents methodology and preliminary findings from a broader PhD project being undertaken by the lead author. The broader-overarching research question for this study is:

> How is the practice of disability sport coaching discursively constituted in both policy and by coaches' themselves?

In this paper we present the proposed methodology for this project. We also offer up some preliminary findings from sport policy analysis. Our work here, and the doctoral project, is heavily indebted to the field of governmentality studies. In the next section we provide an overview of governmentality as a means to map out our analytics that informs the approach to both understanding and analysing policy.

Governmentality

Rarely has Michel Foucault's analysis of political power, governmentality, been applied by researchers in the field of sports coaching (Piggott, 2012). Governmentality, or what Foucault termed 'government' is described as "an activity that undertakes to conduct individuals throughout their lives, by placing them under the authority of a guide, responsible for what they do and for what happens to them" (Foucault, 1997, p. 68). Hence the term the term coined by Dean (1999) and others 'conduct of conduct'. In terms of the broader project, we are concerned with what Dean refers as mentalities of government that emphasize "the way in which the thought involved in practices of government is collective and relatively taken for granted,"(p.16). Governmentality studies has become a popular field of studies over the past twenty years and scholars have used it to analyse the relationship between government agencies and Athletics NSOs in Australia and the UK (Green, & Houlihan, 2006); the political hopes and enacted technical practices of Health Education (Leahy, 2012); and Piggot's (2012) exploration of the nature of coaches' experiences of formal coach education determine the extent to which they are considered useless. These studies, and their use of an analytics of government have illuminated the ways in which governments attempt to conduct conduct across a range of different sites. They have also sort to consider the effects of the taken-for-granted practices that characterise their respective fields.

Secondly, there appears to be a lack of, what seems to be, deep, independent evaluation in sports coaching and sports coaching policy has led me to trouble what Harwood and Rasmussen (2004) refer to as the 'certitude of pleasantry' that characterises sports coaching. Drawing upon Foucault's 'ethics of discomfort', Harwood and Rasmussen suggest that such an approach can unsettle certainty and its limits. There is we would suggest a level of 'pleasant certitude' in the field of sports coaching and the lead author's PhD is underpinned by a desire to engage in an analytics that enables this to be corrupted. Hammond intends to purposefully bring a Foucauldian 'ethics of discomfort' to sports coaching and its various assumptions about sport pedagogy, inclusion and disabled people. In doing this we hope to engage with a more sophisticated and nuanced analysis that can help the field of sports coaching grapple with its role in providing opportunities for disabled people to engage in sport in a variety of settings and levels.

Governmentality studies

Governmentality studies is a field of studies that is largely interested in studying the 'conduct of conduct' (Rose, 1999, 2000; Rose, O'Malley, & Valverde, 2006). According to Foucault, governmentality is not just about studying institutions of power, or the general or institutional forms of power and domination. "Rather, it meant studying the techniques and procedures by which one sets about conducting the conduct of others," (Foucault, 2010, p. 4) hence the term 'conduct of conduct'. Specifically studies of governmentality enquire about a particular 'stratum' of knowing and acting. In Foucault's words

> That is to say, I tried to pose the question of norms of behaviour first of all in terms of power, and of power that one exercise, and to analyse this power as a field of procedures of government. Here again the shift consisted in passing from analysis of the norm to analysis of the exercise of power, and passing from analysis of the exercise of power to the procedures of, let's say, governmentality. (Foucault, 2010, p.4)

Further, governmentality is about the study of conduct and the emergence of particular 'regimes of truth' that guide conduct and practices, how these are expressed and by whom and the associated costs and range of effects of so doing so. Specifically, in the case of the proposed thesis who directs the conduct of disability sports coaching and what are the consequences of doing so. In this sense Governmentality studies are concerned with the conditions of possibility and intelligibility for certain ways of seeking to act upon the conduct of others, or oneself, to achieve certain ends (i.e. how might a government regulate the conduct of coaches to win gold medals at the Olympic games).

The role of governmentality studies is to be diagnostic rather than descriptive, that is, they scholars seek an open and critical relation to strategies for governing, attentive to their presuppositions, their assumptions, their exclusions, their naiveties, and their knaveries, their

regimes of vision and their spots of blindness (Leahy, 2012). At the heart of the literature concerning governmentality is an alternative way of conceptualizing and investigating political power that is not structured so strongly in terms of the hegemonic role of the state. In the context of the proposed research, this thesis will coalesce around a recognition that modern systems of government governs under what Rose (1999) would term 'advanced liberalism' where Raco and Imrie (2000) argue that, "increasingly, government seeks not to govern society per se, but to promote individual and institutional conduct that is consistent with government objectives," (p. 2,191). Given this, it is easy to see how coaching might be considered to be a site where the government has a vested interested in directing conduct in order to achieve certain ends, perhaps national pride through participation at the Olympic games or health related outcomes from mass participation in organised sport. In the following subsection, I will outline how a research approach informed by insights from governmentality and Foucault's work on genealogy perspective is applicable to sports coaching, the broader project.

Towards a genealogical approach to governmentality in sports coaching

The purpose of the proposed thesis is to understand hopes of sport policy and the discursive practices (i.e. rationalities, techniques and subjects) that aim to constitute the inclusive disability sport coach subject. Arribas-Ayllon and Walkerdine (2010) state that there are three broad dimensions for the analysis of 'discursive practices': (1) 'discourse' entails historical inquiry, otherwise known as 'genealogy'; (2) Foucauldian discourse analysis should attend to mechanisms of power and offer a description of their functioning; and, (3) analysis should be directed towards subjectification – the material/signifying practices in which subjects are made up. The proposed study draws inspiration from Foucault (1977) work that helped raise a 'critical consciousness' of the workings of discourse and power which is referred to as genealogy. Ailwood (2004) argues when compared with conventional historians, genealogists prefer not to search for foundations or underlying truths. Instead genealogists are considered to be interested in the accidents, contingencies, overlapping discourses, threads of power and, more importantly, conditions of possibility for the production of common sense that contribute to taken-for-granted truths (Fleming, 2014). It is pertinent to note at this stage, that I am not attempting to produce a genealogy of disability sports coaching in Australia as the final proposed thesis. Rather, I am heavily influenced by Foucauldian scholarship on genealogy in my approach to the entire research process (i.e. review of literature, methods, theory etc.).

Foucault (1977) considers "genealogy [to be the] examination of the relations between history, discourse, bodies and power in an attempt to help understand social practices or objects of knowledge that continue to exist and have value for us,"(p.146). The proposed theoretical/methodological approach aims to provide an analysis of the emergence, which is concerned with the shifts and junctures of relations of power between people. Like

the researchers of this project, Foucault was concerned with how knowledge stemming from the sciences were emphasised to such an extent that they had become complex strategic constructs and forms of domination in societies (Papps & Olssen, 1997). Of particular relevance to the proposed study is the notion that specific discourses that become dominant, carry more authority or weight than other discourses (e.g. pedagogical knowledge, ethics etc.), and become established as 'truths'. According to Fleming (2014) "gradually these truths or knowledge's establish the boundaries of what is acceptable and appropriate, and have implications for how people define and relate to each other and themselves,"(p.49).

In the next subsection of this paper I will present findings from contemporary sport policy statements and documents that illuminate the established truths circulating around disability, swimming and coaching circulating around explicitly current Swimming Australia sport policy.

Preliminary findings

Swimming Australia's Strategic Plan (2011-2016)

According to Swimming Australia's (SAL) strategic plan's participation strategy, under outcome one SAL aims optimise participation through sustained growth by:

> vii.: Increasing access and participation for targeted populations (e.g. Indigenous, CALD, SWD) ; and,
>
> vii Working with stakeholders to establish and adopt National Disability Inclusion Framework
>
> (Swimming Australia, n.d)

Many instances that refer to the improvement, retention and training and education of coaches was a key strategy listed under two of the three headings – Participation and Performance. It is clear from this particular document that in line with broader governmental objectives surrounding equity and fairness and disability. These statements, however require further investigation and analysis. In the next subsection, I will present findings from SAL's Member Welfare Policy, highlighting similar translation and the emergence of contradictions.

Member welfare policy (2014)

The following is a very optimistic statement from the Swimming Australia Member Welfare policy (Swimming Australia, 2014). These statements are only a brief excerpts from a large policy document. However, they are align well with the SAL strategic plan. There is an explicit assumption in this policy that all coaches are assumed to be aware of this policy and

associated definitions, this will be further investigated in the interview stage of this study. According to the Swimming Australia Member Welfare Policy (SAL, 2014):

> Coaches […] and other persons in positions of authority should […] make it known that Bullying, Harassment and Discrimination are not acceptable no matter what the excuse (Swimming Australia, 2014, p. 8).

> Discrimination means treating, proposing to treat or requesting, assisting, instructing or encouraging another person to treat a person less favourably than someone else on the basis of an attribute or personal characteristic they have [reference is made to commonwealth legislation]
> (Swimming Australia, 2014, pp. 10-11).

> Some exceptions to state and federal anti-discrimination law apply,[…] [e.g.] not selecting a participant if the person's disability means he or she is not reasonably capable of performing the actions reasonably required for that particular activity (Swimming Australia, 2014, p.11)

As we can see from the above excerpts this document suggests coaches should not discriminate, no matter what the excuse. However, as we can see further in the document under the definitions of discrimination, despite the rhetoric about increasing disabled people participation in swimming, we see that coaches have an enormous amount of power awarded to them with regards to constituting what counts as 'reasonable' in terms of 'ability' and 'disability'. The next stage of this project, the interview stage, will be essential to further understand how coaches negotiate the terrain surrounding these issues and discourses.

Conclusion and Discussion

Although this paper is brief and the project is still in the initial stages we are satisfied that the presented methodology will provide a novel and innovative insight to the field, once the project is submitted and publications are further developed. To further develop the study, we will investigate how a small number of practicing coaches negotiate their role in deciding what constitutes ability and (dis)ability in swimming. We want to suggest that coaches are integral to the functioning of contemporary government as they effectively act as a contact point for exercising governmental power at the capillary level (Leahy, 2012).

In summary it is clear at this stage that governmental hopes with regards to disability inclusion are articulated in sport policy statements and are enshrined in SAL documents. This research builds on recent work by others (e.g. Spaaij et al., 2014) who have noted the translation of these hopes and aspirations are messy to the club level, this provides the field with some specific findings related to swimming.

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Poor parental behaviour in youth sport: How can physical educators challenge this sociocultural construction?

Dr Sam Elliott
Flinders University

The topic of poor parental behaviour in children's and youth sport represents a significant issue for sport providers, physical educators and policy makers globally. Although parents can exert a positive and supportive influence, they also possess a high potential for negatively impacting children's and youth sport. Parental involvement in children's and youth sport has been well researched internationally, but only recently has an Australian perspective contributed to broader discussions. Consequently, parental involvement is often perpetuated in a negative light by popular press, reiterating the perception that 'ugly' parenting is endemic in junior Australian sport. While this perspective can misrepresents those parents who do engender a positive influence, claims of parental violence, abuse and aggressive behaviour cannot be ignored. Consequently, attempts to understand and address this issue has resulted in the development of a variety of educative (e.g. parent training), punitive (e.g. fines), restrictive (e.g. silent Saturday's) and contractual (e.g. code of conduct) interventions. Yet despite these measures, current research suggests that the antecedents of poor parental behaviour remains a recurring challenge for children's and youth sport. In contrast to majority of the sport-parenting literature which adopts a psychological lens to interpret this issue, this paper considers the notion of parental involvement in sport from a sociocultural perspective. In doing so, this paper illuminates broader aspects of society and culture which play a vital role in reinforcing and maintaining the current representation of sport and sport behaviour. By viewing this phenomenon in this way, alternative approaches to address this issue emerge, including the role of school physical education. Although challenges associated with poor parenting practices in children's and youth sport appear a 'distant' issue for physical education, this paper argues that school physical education can play a critical role in challenging the current nature and construction of sport and sport behaviour.

Introduction

The benefits of sport participation during childhood are well established. Regular sport participation is not only a critical element in combating substantive health issues such as obesity, but vitally important in developing psychological and social health and wellbeing among children and youth (Eime, Young, Harvey, Charity, & Payne, 2013). It also comprises a popular vehicle for accruing physical activity among children in Australia. National data indicates that over 1.7 million children currently engage in at least one organised sport, representing 66% of children aged between 5 and 14 years (Australian Bureau of Statistics, 2013). Despite this however, sport drop out remains a significant issue. Research suggests

that while sport participation is considerable during the early years, sport drop out peaks at approximately 13 years in Australia (Drummond, Agnew, Pill, & Dollman, 2013; Olds, Dollman, & Maher, 2009).

Poor parental behaviour and sport drop out

While factors such as injury, financial pressure and competing academic commitments can lead to disengagement and subsequent drop out, the priori reason for discontinuation in children's and youth sport is a lack of enjoyment (Armentrout & Kamphoff, 2011; Crane & Temple, 2014; Enoksen, 2011; Fraser-Thomas, Côté, & Deakin, 2008). Indeed, limited playing time, conflict with peers and/or coaches, and low perceptions of competence can contribute to low levels of enjoyment in sport (see Figure 1). However, it should also be noted that the nature of parental involvement can influence enjoyment among junior sport participants. Positive and supportive parental involvement is associated with high levels enjoyment and motivation – both which are requisite determining factors for continuation in sport participation beyond the formative years (Fraser-Thomas & Côté, 2009; Keegan, Harwood, Spray, & Lavallee, 2009; Wiersma & Fifer, 2008). Yet pressuring and inappropriate parental behaviour can also result in a declination in enjoyment for children and youth involved in organised sport (Knight, Boden, & Holt, 2010; Knight, Neely, & Holt, 2011). Addressing this issue is therefore critical given that early sport experiences during childhood strongly predict physical activity patterns into adulthood ((Taymoori, Berry, & Lubans, 2011; Telama et al., 2005; Thompson, Humbert, & Mirwald, 2003; Ullrich-French & Smith, 2009; Vanreusel et al., 1997).

Despite these participatory consequences, scholarly evidence continues to emerge in relation to poor parental behaviour in children's and youth sport. For instance, negative and abusive parental verbal behaviour have been readily identified in youth soccer (Goldstein & Iso-Ahola, 2008; Holt, Tamminen, Black, Sehn, & Wall, 2008) and hockey (Bowker et al., 2009). In junior Australian football, parents have also been found to model aggressive and confrontational behaviour toward children and officials (Elliott & Drummond, 2013). Parents have also been purported to place inappropriate and unnecessary pressure on children and youth by incentivising participation with tangible, extrinsic rewards, comprising a significant source of stress and pressure for participants (Fraser-Thomas & Côté, 2009; Fraser-Thomas et al., 2008; Keegan et al., 2009). While parents certainly have a capacity to exert a positive influence in the sport setting, the literature propagates the view that parental involvement is a multifaceted, yet universally relevant issue to all stakeholders involved in children's and youth sport.

Current landscape

Current strategies to address the problematic nature of sport-parenting include educative (e.g. parent training), punitive (e.g. fines), restrictive (e.g. silent Saturday's) and contractual (e.g.

code of conduct) interventions. However, on the basis of the limited evidence available, it is arguable that these interventions have not been successful. For instance, Omli and Wiese-Bjornstal (2011) found that concepts such as *silent Saturday's* – where all verbal sideline behaviour is prohibited during games – are not an optimal solution because while they remove negative parental comments, they also eliminate the positive and encouraging comments that children and youth prefer. Furthermore, research has found that while educative and contractual interventions are well developed and disseminated, they are largely ineffective in dealing with the emergence of problematic parental behaviour during competition (Elliott & Drummond, 2015). Therefore, alternative approaches for understanding and addressing this issue are warranted.

A new approach

The 'sport-parenting' paradigm is generally understood from an individualistic, psychological perspective (for example, Côté & Fraser-Thomas, 2007; Fry & Gano-Overway, 2010; Holt, Tamminen, Black, Mandigo, & Fox, 2009). However, this paper implores one to consider this issue from a sociocultural perspective. In doing so, wider social and cultural imperatives can be captured in pursuit of understanding how particular kinds of behaviours and practices in children's and youth sport are socially reinforced and maintained. This is consistent with Elliott and Drummond (2015) who state that culturally significant elements of Western society and culture serve to normalise certain attitudes and behaviours in sport, including sport-related behaviour. For example, elite level sports such as the Australian Football League (AFL) are often characterised by high levels of verbal abuse, images of violence, and a win-at-all-cost culture (Light & Pickford, 2004). The perpetuation of these practices as somewhat permissive at the elite level (Elliott & Drummond, 2015) reinforces an association between sport and notions of abuse, violence and a winning culture. Yet the representation of these social constructions in other sport settings such as children's and youth sport engender vastly different meaning and significance. In this way, it is possible to see how elite sport as merely one tier of broader society and culture can influence how sport is socially constructed and conditioned (Elliott & Drummond, 2013, 2015), which has implications for sport-related behaviour at the 'grass roots' level.

While elite sport is clearly one of the most visible tiers in broader society and culture where sport and sport behaviours are socially constructed, maintained and reinforced, another poignant setting is school physical education. Ostensibly, physical education and negative parental behaviour in sport may not appear to share a common 'space'. This may be attributed to misnomers in the literature which suggest that poor parental behaviour requires intervention at the individual parental level (Omli & Wiese-Bjornstal, 2011). However, by considering this phenomenon as a sociocultural issue, it is possible to recognise the important, yet understated role of physical education, as a critical element of society and culture, in challenging the normalised attitudes, behaviours and practices associated with

children's and youth sport. Although pedagogical considerations are equally important, the following section outlines a curriculum-based approach for challenging the way that sport behaviours are socially constructed. It is argued that like elite sport, schools may be an underutilised context for reconstructing the way that sport is represented and subsequently experienced among children and youth.

A curriculum for beyond the school gates

The revised national curriculum for Health and Physical Education (HPE) is foreground on the proposition that learners engage in critical inquiry to evaluate contextual factors that influence decision making and behaviours, and explore inclusiveness, power-inequalities and social justice issues. Although a consideration for social issues in sport is not explicitly observed in the HPE curriculum, there is certainly an implicit potential for learning about such issues through an applied sport experience. For example, the Sport Education in Physical Education Program (SEPEP) curriculum model may be one vehicle through which students can experience and interrogate the social dimensions of sport. Sport Education curriculum models are readily identified for their capacity to foster important social relationships and team affiliation (Hastie, de Ojeda, & Luquin, 2011). Characteristic of the SEPEP model, and under the guidance of the teacher, student are given a unique opportunity within the physical education experience to develop an understanding of the broader social and cultural imperatives of sport by assuming responsibility for organising, competing in, and celebrating a competitive sport season (Hastie et al., 2011). Within a SEPEP curriculum, students assume opportunities to explore the nature of competition and experience the demands associated with coaching and administration. In these roles, students are permitted to design competition rules, codes of conduct and other materials which govern the sport education experience. Through this process, discussions around sport policy, conduct and behaviour, winning and competition (to name a few) are possible, which provide a solid foundation for entering the debate around how the sport experience should be constructed. This may not only lead to new and innovative approaches for experiencing sport, but also challenge the traditional norms associated with sport participation. Consequently, this may contribute to (a) disrupting typical attitudes and behaviours currently practiced and (b) fostering 'new' attitudes and behaviours which favourably compliment the sport experience in physical education and in the wider community setting.

Some guiding questions for students might include:

When designing competition rules

- Why is it important to have a code of conduct? What does good and bad sports conduct look like?
- Is it more important to win or have fun? How will this influence your competition format?

When playing games

- What does encouragement look like?
- How can you ensure that you are encouraging and not discouraging? What is the difference?

When celebrating the end of season

- What are we celebrating? Why are we celebrating? How should we celebrate?
- What is the purpose of participating in sport?

This contrasts traditional HPE curriculums where social and cultural issues in sport have been typically appended to the theory component of HPE, if at all. However, by adopting a curriculum model where learning about social issues in sport is implicit in the participatory experience, students are not only given latitude to debate the way sport is represented, but also question how sport should be practiced beyond the school gates. Students may inadvertently reinforce 'good' sport conduct and behaviour by modelling the types of conduct they perceive to be most supportive and appropriate. Furthermore, by intervening within school physical education, students may begin a generational shift in attitudes and behaviours which transform the nature of sport-related behaviour into the future. It is also possible that students' conceptualisation of appropriate sideline behaviour through school physical education may play a reflexive role by challenging current parenting practices in the wider sport community. In this way, such an approach has both an immediate and long term potential to influence this important sociocultural issue.

Implications

If we accept that negative sport-parenting practices are influenced by broader society and culture, it is therefore necessary to explore aspects of society and culture which have the potential to challenge these social constructions. Indeed, elite level sport comprises one of the most visible platforms to challenge the construction of sport-related behaviour. Although beyond the scope of this paper, it is also arguable that the utility of news and social media can play a role in this regard. However, the premise of this article encourages physical educators to consider a sport education curriculum as an integral medium through which current sport-related behaviours can be challenged. As students enter the debate of what constitutes 'good' and 'bad' sport-related behaviour, they not only equip themselves to model appropriate conduct within their own SEPEP season, but also beyond the school gates in the wider sport community. Social issues in sport such as poor parental behaviour may appear distal to health and physical education, however, school physical education may comprise a potentially critical piece of the puzzle in challenging and reconstructing the nature of parental behaviour in organised sport. Ultimately, given that physical educators are in the 'business' of promoting lifelong engagement in physical activity, they are complicit in discussions relating

to sport drop out. If negative parental involvement results in lower levels of enjoyment, which in turn, leads to discontinuation in sport, presented here in this paper is a thought-provoking opportunity for physical educators to challenge this salient issue.

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High-performance adolescent female basketball players' views on parental involvement

Ricardo Milheiro Pimenta & Professor Richard Light
University of Canterbury, College of Education

Parents influence the enjoyment of girls playing basketball. This study inquired into the influence that parents have on girls' enjoyment of playing basketball. We interviewed six girls, aged fourteen to fifteen, in a high performance level basketball club in Melbourne. Using a grounded theory approach two major themes appeared from the data "Passive support and encouragement" and "Active support: Pushing them when they need it" and a sub-theme "Constructive criticism". The girls in this study valued the support along a spectrum from what we call passive to active. It suggested that, while parents stepping back and providing support in the specializing phase contributes to keep the girls in basketball at this level, it can and probably should, involve some direct involvement that could be seen as being active, as long as it is always positive and never personal.

Introduction

Given the wide range of benefits associated with children's and young people's participation in sport (Bailey et al., 2009) factors contributing toward dropout from sport form a significant focus for studies in youth sport (Wall & Côté , 2007). The sudden increase in female dropout from sport is particularly marked with girls from the age of thirteen to fifteen and has attracted research attention across a range of settings (Sarrazin, et al., 2002). It has, however, tended to focus on girls playing sport at participation level, at the expense of studies on girls playing at more competitive levels, where the factors operating to shape dropout are likely to be very different, but just as significant.

There is a wide range of biological, social and psychological factors shaping adolescent girls' experiences of participation in sport and their decisions about continuing or dropping out (Wall & Côté , 2007) but some of the youth sport research has identified the significant influence that parental involvement has on participation in sport and particularly as children and young people moving into what Côté and colleagues call the specializing phase in their Development Model for Sport Participation (DMSP) from the age of 13 to 16 (Côté & Hay, 2002; Knight & Holt, 2014).

We focused on girls aged fourteen to fifteen playing high performance level basketball in one team within a Melbourne basketball club, to examine the influence that their parents have on their enjoyment of playing basketball at this level. It follows on from the positive approach taken

by Light, Harvey and Memmert's (2011) study on swimming in Australia, France and Germany to look for the positive aspects of participation that encourage them to continue their participation at that level. Basketball has a very high participation rate among children and youth and is a high profile female sport with the women's national basketball team ranked second in the world.

Parents and youth sport

With growing recognition of the deep and lasting learning that arises from young people's and children's participation in sport research, suggests that parents not only influence children's socialization into sport, but also that they have a deep impact upon the nature of their experiences of participation that shapes their psychological, physical, social and cognitive development (Brustad, 2003; Côté & Hay, 2001; Knight & Holt, 2014; Light, 2008).

Modern organized youth sport has moved a long way from being unstructured child's play toward being far more serious and competitive activity to the extent that there is concern over the imposition of competitive adult values and the ethical learning that takes place through participation in sport (Kerr, & Stirling, 2013). However, while participation in youth sports can yield physical, psychological and social benefits it is still imperative that children and young people have fun playing sports and are allowed to benefit from the positive social and moral learning that is possible from participation in sport (Kerr & Stirling; DeMartelaer, de Brouw & Struyven, 2013). This means that coaches and parents alike need to keep in mind that young athletes are not miniature adults and to keep in mind that as children they have the right to play and enjoy it (Kerr & Stirling, 2013). Youth sports are first and foremost a play activity, and the children deserve to enjoy sports in their own way, making it important that programs remain child centered and do not become adult dominated (Kerr & Stirling, 2013).

The Development Model for Sports Participation (DMSP)

The DMSP suggests that children and young people pass through three distinct phases in a process of socialization into sport. In the sampling phase (6-12 years) they 'sample' a range of different sports with an emphasis on fun and deliberate (structured) play and can drop out of organized sport or shift into recreational sport or leisure activities during this phase or move on into a specializing phase from the age of around 13 to 16. During the specializing phase children move from deliberate play to deliberate (structured) practice aimed at improving performance. They reduce participation in other sports and take part in more serious practice that still maintains fun and enjoyment as a central element of their participation. From the specializing phase young people are then seen to move into an investment phase that involves an increasing focus on one sport with a commitment to intensive training and competitive success from around

the age of 16. In this phase young people 'invest' time and effort in a single sport. This progression seems to be relatively linear as long as young people stay involved in organized, competitive sport but during all three phases in the DMSP children and young people can move sideways into recreational sport where participation is more fun and informal or by drop out of sport completely. The girls in this study were fourteen to fifteen years of age at the time of the study, which places them in the specializing phase of the DMSP.

Methodology

A constructivist grounded theory approach was used, where the generation of theory is grounded in the data was developed through and ongoing process of developing emerging theories from the data that were compared, contrasted and tested in subsequent rounds of data generation, leading to the identification of theory grounded in the data (Charmaz, 2006). The data generated reflected the participants' meanings originating from their interactions with their setting. The data drawn on in this article were generated from a larger study on the nature of participation in high level basketball for girls aged 14-15 years.

The site

The study was conducted in the under 16 A team within one of the strongest basketball clubs in Australia located in the city of Melbourne.

The participants

Six girls were randomly selected from those who responded to an invitation sent to all girls playing in under-16 years teams to participate to volunteer to take part in the study. The study had ethical clearance from Federation University Australia. They are referred to under the pseudonyms of Anne, Rachel, Jackie, Susanne, Bella and Catherine.

Data generation & analysis methods

The data were generated through an initial questionnaire sent to all girls in the four under sixteen year's teams in the club. Analysis of this data was then used to develop the questions for the first interview in a series of three, conducted before training on Sundays over the season and of approximately 40 minutes duration, giving a total of approximately 720 minutes of interview data. Analysis was conducted using grounded theory methodology.

Results

1. Passive support and encouragement

The strongest theme was the need for unquestioning support from parents: “My parents support me completely. If you are having a rough trot and are down they will help you back up. They drive you around. Whether I am doing good or not so good they are there” (Bella).

All six girls played basketball at the highest level for their age in Australia and took great pride in their team’s performance over a long and testing season. However, as enjoyable as it seemed to be for them, and as cohesive as the team seemed to be, playing at this level created pressure for them, even if only from their own expectations of success and their deep desire to do the best for the team. This meant that they wanted support and understanding from their parent, and not more pressure.

Young people in the specializing phase need emotional support from their parents and for them to be understanding (Côté, 1999) instead of ‘parent coaching’. They wanted support but, at other times, to be left alone: “If I need them they are there, but if I don’t want them around, they understand that I kind of need my space” (Bella). The girls expressed gratitude for their parents giving up their time to drive them to practice and competition games. They were also thankful for the ways in which their parents tried to lift their spirits when they were down, to motivate them and to boost their confidence when needed. When asked what parents in general should do to help their children, Jackie said that they should: “Encourage them and keep a positive attitude”.

Active support: Pushing them when they need it

In addition to what we suggest could be seen as providing passive support when needed, the girls valued being ‘pushed’ when they needed it. This was a case of them wanting their parents to be a little more assertive than just being there for support or offering words of encouragement: “Yeah they are always encouraging me and pushing me to do better... They are always running us around to training and games. They wouldn’t do it if they didn’t see something in it for us” (Catherine). When asked who had helped her enjoy basketball and develop her talent, Anne nominated her mother: “My mother, because she supports me all the time and pushed me when I need it. She is really involved”.

Constructive criticism

In addition to seeing a need to be pushed at times several, the girls suggested that a little “constructive criticism” was helpful at times because they did not want to always be told how good they were. This honesty was also something they valued with their coach. Although the literature suggests that parents of young people in the specializing phase should just take a back-

up role, these girls wanted some parental input that was critical, but not personal. When asked what advice she would give to parents of girls of her age in any sport Bella said that:

> …maybe, giving constructive criticism saying, 'you're really good at this but this needs to improve' and I think the communication channels are something that a lot of girls struggle with because they can't deal with a lot of yelling whereas, if you have the approach like, spoke to them in a different manner, I think they'd be more motivated. (Interview, Bella)

Rachel comes from a family that has a big involvement in basketball with both parents and her sister playing basketball. She is happy with their involvement and with getting some constructive criticism and some sport-specific advice:

> Mom and dad always, if they are watching my game, they're always helping me to try to improve what I'm doing and stuff. When I was younger it was really important. They pushed me to stay in sports, like in "*a*" sport. It didn't matter what sport. I chose basketball because my sister was doing it and I think that's the big thing I wanted to be like her. (…) and my parents just helped me to get where I am. (Interview, Rachel)

Anne's advice for parents provides a good summary of all the six girls' belief that the ideal role a parent should play is not limited to providing support but should extend to pushing their children to do things that they may not want to at the time:

> Encourage them, like if they don't want to do something, and you know that it's good for them, push them to do it. That's what my mom had to do, find a way to do camp or something. I really didn't want to go and she pushed me to do it and I end up liking it and learning a lot from it. Make sure that they always have fun but learn at the same time and always stay positive during everything. And know that you are going to have fun but also work hard at the same time. (Interview, Anne)

Discussion and Conclusion

The extensive data generated over eight months provides deep insight into the nature of the girls' participation in their team and the social meaning it held in their lives but its focus on only six girls in one team does not allow for generalizing from the results. However, the findings of this study do lend support to previous research suggesting the positive influence of support from parents on children and adolescents' self-perceptions, affective responses, and motivation (Leff

& Hoyle, 1995; Fredricks & Eccles, 2004; Brustad, 1993). Most of the literature on parental involvement in children's sport suggests they should take a more supportive role than directive, particularly during the specializing phase (Côtè, 1999).

As the literature on contemporary developments in games teaching suggests (Light, 2013), Knight and Holt (2014) argue that parents should engage in dialogue with their children to identify goals for involvement, the areas of competition they need help coping with, and the types of involvement they prefer. Young people's positive perceptions of this parental support and care for them also contributes toward the promotion of motivation, self-esteem and self-worth in schooling and in sport (Agne, 1992; Harter, 1993; Jones, 2009; Kentel, 2011; Martinek, Schilling & Hellison, 2006).

The findings of this study do, however, suggest that, in the case of the girls in this study, they appreciated support along a spectrum from what we call *passive* to *active*. *Active* support involves parents being assertive but, at the same time, being positive by giving the positive feedback and supportive socio-cultural environment that research suggests motivates young athletes and helps them to realize their talent (Keegan et al, 2009; Light, 2008; Wuerth et al, 2004). It suggests that while stepping back and providing support in the specializing phase makes a contribution toward keeping the girls in basketball at this level it can and probably should, involve some direct involvement that could be seen as being *active support,* as long as it is always positive and never personal.

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An application of non-linear learning in Netball: game-sense coaching

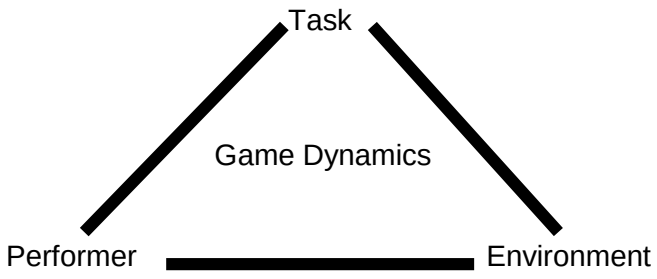
Terry Magias, Dr Shane Pill & Dr Sam Elliott
Flinders University

This paper explains the application of constraints-led skill learning theory to performance analysis in netball enacted as the Game Sense (GS) approach. The progressive development of the inter-related dimensions of tactical decision-making and technical models of movement in skilled performance as complimentary pairs will be described.

Constraints-led skill learning theory

Constraints-led skill learning theory acknowledges the emergence of technical and tactical dimensions of movement under the influence of interacting individual, task and environmental constraints (Davids, Button, & Bennett, 2008; Newell, 1986). Individual constraints include physiological characteristics (height, weight, muscle-fat ratio, cognitions, motivations and emotions. Environmental constraints are external variables that exist in nature such as ambient light and weather conditions. Task constraints influence learning more directly, comprising task rules and aims associated with an activity.

Figure 1. Constraints define the system parameters and the possible coordination dynamics between players. Hence, the constraints interact to construct the 'logic' of the game and the 'principles of play' through which the game can be understood.



Constraints-led skill learning theory emerges from a systems perspective that emphasises the need for pedagogical approaches in skill learning that consider the dynamic interactions between constraints (Renshaw, Chow, Davids, & Hammond, 2010) (Figure 1), and how they may be exploited for desired information sources within the game to couple with movement (this is known as perception-action coupling) (Spittle, 2013). To this end, constraints-led skill learning theory direct practitioners to pedagogical approaches that adopt a player and game-centred approach, guiding learners to explore and discover functional movement solutions within modified game dynamics. In other words, pedagogical approaches that teach sport for understanding and the development of what Den Duyn (1997) coined 'thinking players'. This approach acknowledges that game skills shouldn't be

practised in isolation from the perceptual environment (i.e. games) in which they are executed (Spittle, 2013). This contrasts traditional progressive-part pedagogies, where 'technical before tactical' approaches (i.e. technical skill competency must be achieved before game-play could occur) are commonly practiced in the broader sport coaching community.

Netball as a complex dynamic system & Momentary Configurations of Play.

Davids et al. (2008) draws upon the work of Clarke and Crossland (1985) to highlight the dynamic systems perspective as framework for studying human behaviour as it recognises complex systems. Applied to team sports such as Netball, a systems perspective provides an operational framework by which complex interactions of game components can be conceptualised within an organisational relationship. That is, coordinated patterns of play undergo phase transitions (Davids et al., 2008) from attack to defence/defence to attack. In this process, system components (i.e. players individual coordination dynamics that result in enacted skills and tactics) link together to shift in and out of synergies that satisfy task constraints (i.e. rules) in a defined performance environment and achieve game outcomes. Each emergent pattern of coordination is a momentary configuration of play (and sub-system in itself), whereby the game system 'self-organises' into attacker-defender relationships (Gréhaigne & Godbout, 2014). As such, the emergence of coordinated game dynamics is dependent upon intra and inter-individual patterns of coordination occurring. We argue that this description of games like Netball is not captured in the traditional mechanistic model of coaching that foregrounds directive and command styles to achieve repetitive technical behaviour mainly by drill based experiences.

Adaptive and flexible movement responses

Acknowledging netball as a complex dynamic system, the ability of players to identify and flexibly adapt to shifting configurations of play becomes a central concern of coaching. This understanding challenges the traditional coaching paradigm whereby consistent repetition of biomechanically optimal 'text-book' techniques has been associated with skilled performance. A linear-approach is therefore employed, compartmentalising game and skill components to be taught separately prior to being reassembled for game-play to occur. This assumes technical aspects of performance have to be mastered before games can be played. In contrast, a dynamic systems perspective is implicit in non-linear coaching, where skilfulness is instead associated with the ability to predict and adapt movements within shifting game dynamics to successfully meet the demands of the game. Smith (2014) suggests that technical and tactical game elements are better thought of as complimentary pairs. This is consistent with descriptions of skilled performance within a GS coaching approach, where skill is described as the technique performed within the game context and coaching is directed towards being "game-centred" rather than "technique-centred" (Den Duyn, 1997).

The skilled performer is not necessary the player with the 'best' technical model but the one with more accurate anticipation and perception-decision making ability (Williams & Ford, 2013). However, this does not mean technical execution is devoid of implicit attention in the coaching/learning process. A tool intended to assist coaches in planning for skill development from a systems perspective is discussed later.

Skilful performance in Netball

Pill (2013, 2014) and Breed & Spittle (2011) have both linked GS coaching with constraints-led skill learning theory. They highlight that attempts by coaches to synergise players with shifting configurations of play require tactical awareness and adaptable technical models for movement skill competency. Similarly, Smith (2014) argues that movement and game skills are inextricably linked, but 'text-book technique' models of skill performance fail to recognise the influence of this relational dynamic on performance.

The GS coaching approach addresses this tactical-technical issue with designer/modified small-sided games that seek to develop technical and tactical competencies in tandem through representative task design (Charlesworth, 1994). Beyond merely engaging in modified games, there is the need for learners to become perceptually attuned to relevant informational properties in the game environment (Chow et al., 2007). This is achieved through deliberate modification of constraints that allow 'affordances'; that is, relevant coupling between desired game information and the learner. The result is that intended technical and tactical competencies emerge under an exploratory process guided by inquiry-based coaching styles.

The complex performance dynamic of netball explained so far is illustrated in Figure 2 with the performance ability of players described as the players "game sense", a phrase analogous with "game intelligence".

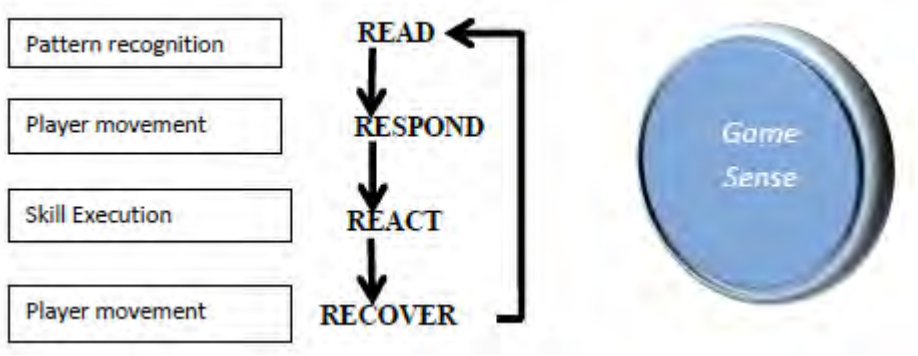


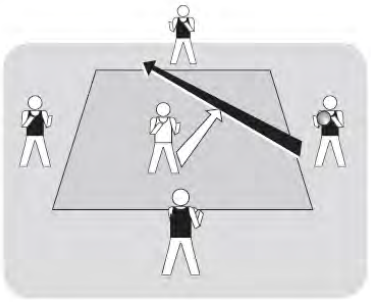
Figure 2. **Anatomy of Netball game performance**. (modified from Hopper 2003 in Pill 2013).

What does this look like in practice? Game Sense Netball Coaching

GS Netball coaching emphasising the manipulation of key constraints by playing with purpose to develop functional movement behaviours (appropriate degrees of movement freedom) is illustrated in the following game designs and practice tasks adapted from Pill (2014), with a focus on developing attacking and defensive structures.

Attacking structures

Figure 3: Four Square 4v1.



FOUR SQUARE 4v1

AIM:
- 'IT' (defender) attempts to touch the ball.

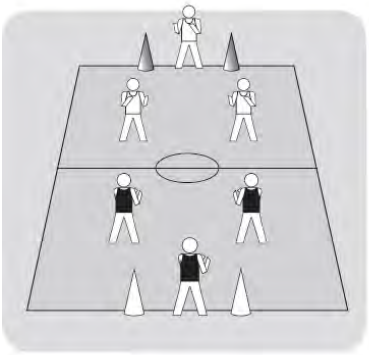
INSTRUCTIONS:
- Groups of 5 players with one ball.
- Create a grid 5m x 5m. Four players stand in the middle of each side, forming a diamond, one with a ball.
- One player starts as 'IT' (defender) in the middle of the grid.
- On GO, player with the ball throws to a semi-stationary team-mate.
- If 'IT' (defender) touches the ball, they swap places with the player that threw the ball and the game then re-starts.

CHANGE IT:
- No immediate 'pass backs' to the player who threw to you.
- Players can only throw to a team-mate who calls for the ball.
- Players can only throw to a team-mate who calls and signals for the ball.
- If the ball hits the ground because of a poorly executed throw or dropped catch, it counts as a touch and 'IT' (defender) swaps places with the player who made the error.
- Add a second 'IT' (defender).
- After throwing the ball, the player must run to one of the corners/end of their side line and back to the middle of their line before they can get the ball back again.

Four Square 4v1 (Figure 3) starts with a defender relationship to the attackers. The initial focus is reading defender movements to react to open passing options. Through modifications of constraints, attacker coordination dynamics can be changed to focus on first attacker/second attacker (off the ball support) relationship. E.g. 3v1 so that there is always one side/wall of the square free, emphasising potential leading space. The challenge of the 3 attacking players is to coordinate and maintain an offensive triangle where there are always 2 passing options available. Here, perception-action becomes focused on monitoring teammate leads to maintain possession. This configuration of play may be encouraged through rule modification where mandatory verbal/visual signalling cue creates a perceptual information exchange between attacking players from which a synergised attacking pattern can emerge. Similarly, requiring players to move to a corner after passing the ball emphasises a recovery action, to shift the attacker triangle in adjustment to defender movements. Space parameters may be modified to facilitate or challenge stability of the attack configuration. E.g. reducing court size will decrease 'open' lead space and therefore constrain time allowances for successful passing. Different court space dimensions may impose additional variability

whereby different types of passes become necessary, depending on teammate distance (see Figure 1).

Figure 4: 3v3 Go for Goal



3v3 GO FOR GOAL

AIM:
- Score from inside the teams attacking half of the field.

INSTRUCTIONS:
- Create a grid 10m x 10m with a set of goals at either end.
- Form two teams of 3 players. Allocate each team a scoring end.
- One player from each team is nominated the 'goal keeper' and starts the game by standing on the teams' defensive goal line. They are not permitted past the half way line.
- Start the game, and restart after a goal, with teams taking it in turns for a centre pass.
- If the ball goes out of bounds the team that touched it last gives away a free pass from the sideline.

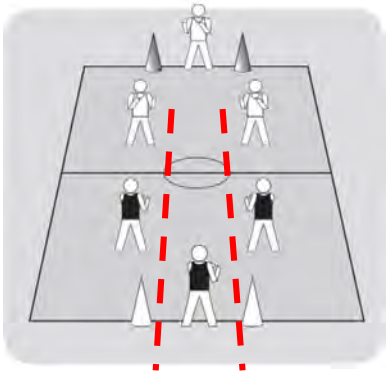
CHANGE IT:
- Increase the size of the grid and add more players to each team.
- Add a goal to shoot at rather than pass to a target player.

3v3 Go for Goal (Figure 4) progresses basic attacker/defender relationships with larger space allowances, permitting greater flexibility in positioning. The game may be altered to outnumber attackers (2v3), focusing learning to support movements off the ball. Specifically, having only 2 attackers encourages players in the support role to read, respond, react, and recover in being the only passing option available;

reading – Identifying free leading space to create a passing option,
responding – Moving to that space,
reacting – Receiving/executing a pass (action), and
recovering – Supporting the ball carrier by providing a follow up passing option.

Complexity of learning can be progressed by adding an extra player to both teams with the objective of maintaining a triangulated attack configuration. Initially, players can be assigned to corridor zones which they are not permitted to leave (Figure 5). This secondary rule may help attack triangulation to explicitly emerge as the boundaries force players to remain spaced. In this way, the boundaries provide an information source upon which the desired attack configuration self-organises. The corridors may eventually be replaced with the rule that attacking players must remain 5 meters from each other at all times. Unlike corridor introduction, this rule adopts an implicit approach upon which players are encouraged to monitor the ball carrier and the 3rd supporting player. The intended outcome is the triangulation attack configuration is maintained as the designer game progresses closer towards traditional netball rules.

Figure 5:



Adapted from (Pill, 2014)

Defensive structures

Figure 6: Defensive Balance

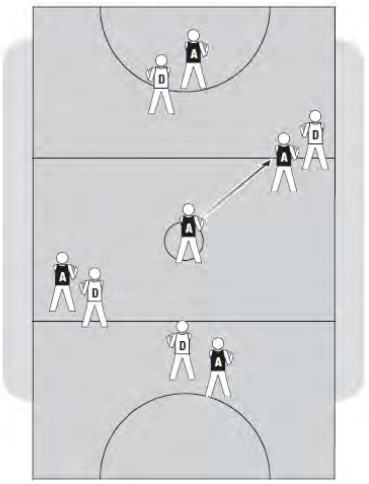
DEFENSIVE BALANCE

AIM:
- To introduce the concept of zone defence.

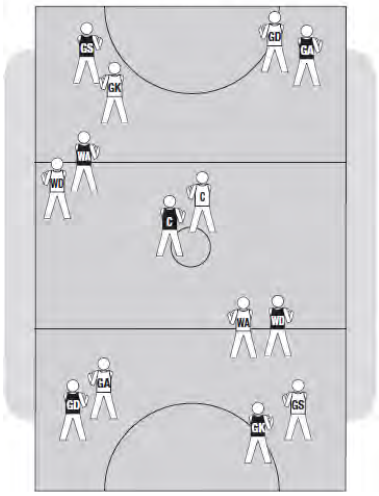
INSTRUCTIONS:
- 5 attacking players and 4 defenders set up as shown.
- Defenders stay in their allocated quadrant.
- Attackers start with one player in each quadrant, but are permitted to move anywhere once play commences.
- One attacker starts with the ball in the centre and from the first pass the attacking players attempt to move the ball anti-clockwise around the court without the ball being intercepted or knocked away by a defender.

CHANGE IT:
- Start with a pass from an attacking player from the sideline.
- Full court 7 person zone defence (7v7) as per version 2 diagram. Attacking team attempt to work the ball down the court from the defensive 'D' to score.

Version 1



Version 2



This game introduces a defensive zone structure via an explicit approach whereby game variability and complexity are limited (but not removed) for novice learners. Initially, defenders are allocated to quadrants, preventing clustering around the ball whilst establishing a structure to guard space. The predictable anti-clockwise path of the ball restrains the perceptual load on reading the play by providing an attack pattern with limited variability. This allows defenders to focus on reading and responding to attacker positioning within a pre-identified 'dangerous space' (likely location the ball is to move to). Complexity may be increased by allowing attackers to change passing direction (anti-clockwise/clockwise).

Figure 7: Pass to a marked team-mate.

PASS TO A MARKED TEAM-MATE

AIM:

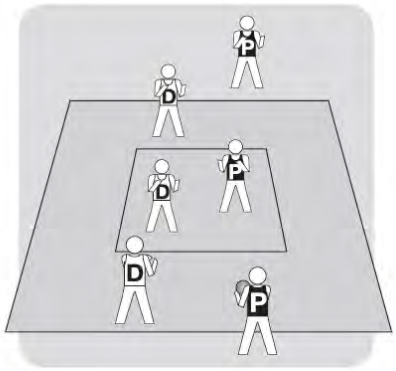
- Team in possession of the ball to maintain possession with short and long passes.

INSTRUCTIONS:

- Two teams of 3v3.
- Set up a grid 15m x 15m, and then create a smaller grid inside it approximately 5m x 5m.
- Possession team (P) set up with one player initially in the centre of the 5m x 5m grid, and two players outside the large/main 15m x 15m grid on opposite sides. The outside players are not permitted inside the 5m x 5m grid. The inside player must start inside the 5m x 5m grid.
- Defending team (D) set up with one player inside the 5m x 5m grid and two players in the space between the 5m x 5m grid and the 15m x 15m grid. The inside player must stay inside the 5m x 5m grid, and the outside players are not permitted into the 5m x 5m grid or outside the 15m x 15m grid unless the coach/teacher calls 'play on' as the player has taken longer than 20 seconds to make the pass.
- Play commences with an outside possession player passing the ball to a team-mate.

CHANGE IT:

- Add extra players into the 15m x 15m grid.



This practice task may be employed in association with the previous designer game to develop defender positioning in order to guard leading attacker space towards or away from the ball. This is primarily achieved by reducing the amount of dangerous space 5x5 grid in which attackers score a point for every successful pass into the box. Having the scoring space centralised provides an informational directive for defenders to monitor the space while simultaneously reading attacker movements around the outer boxes. In other words, this set-up positions defenders between attackers and the scoring zone which may encourage positioning in a 'half-half' orientation (figure 8) whereby ball movement and dangerous space can simultaneously be monitored.

Figure 8:

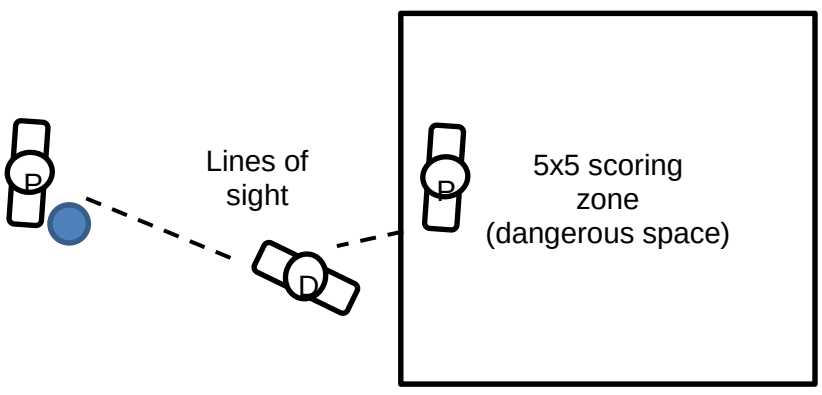


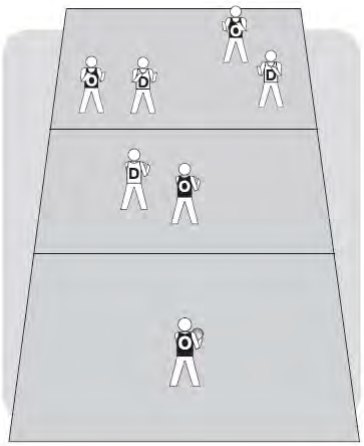
Figure 9: 3v3 with support from behind.

3v3 WITH SUPPORT FROM BEHIND

AIM:
- Offensive players attempt to keep possession.

INSTRUCTIONS:
- Create a grid 10m x 5m, divided into three equal size zones.
- 7 players set up as 3 defenders (D) and 4 offensive (O) players.
- 3 players from the offensive team are only permitted in the 'front' two thirds, and the fourth is only permitted in the back third.
- The 3 defenders can go anywhere.
- If the ball goes out of bounds, the offensive team brings the ball back into play with a pass from outside the side-line over the 'mark' where the ball went out.

CHANGE IT:
- Create an offensive advantage by playing 3v2.
- Do not allow defenders into the back third zone.



Once perceptual and positioning competencies have been introduced, defensive learning activities may be progressed by permitting greater variability in the game experience. However, perception-action coupling should remain focused on perceiving attacker positioning and acting to defend dangerous space (repetition without repetition). The 3v4 scenario is intended to signal the need to read and defend dangerous space rather than direct player-on-player defence. Confining attackers to allocated thirds further emphasises this whilst providing a constraint upon which spreading to guard space becomes implicit, discouraging natural tendencies to bunch around the ball. Court-space and ball speed movement are two primary variables that can be modified to ease or increase the information-processing burden placed on defenders. If defenders are struggling to keep up with ball movement, attackers may be prohibited from skipping the centre third when passing. This reduces the amount of space needing to be read and defended at any single time to a single court third. Alternatively, attackers may be forced to wait 3 seconds after receiving possession before another pass can be made. This provides extra time for the defensive zone to gain stability before the configuration of play is shifted by another pass. This time interval can also be used as a 'pause' moment whereby play is frozen by the coach. Questioning may then be used to prompt defenders to reflect on their own decision making in each configuration of play. Alternatively, an extended five second window could be permitted for the defensive zone to set up. In this interval, verbal feedback can be provided to students by the coach to readjust the zone appropriately in real-time. The expectation that the ball will be passed at a particular time eases the speed of the information-processing burden placed on defenders.

Recognising the functional bandwidth of movement performance

The GS learning activities provided above demonstrate how tactical development may occur under the influence of constraints. An applied tool designed to assist coaches in planning for technical development within such examples will now be discussed.

Recognising fundamental movement and game skills as inextricably linked (Smith, 2014) 'text-book technique' models of skill performance fail to recognise the influence of relational dynamics on performance. These have often been highly deterministic and cross-sectional in nature, capturing optimal performance in a vacuum devoid of learning stages or fluctuating game conditions. Teacher directed skill-drill pedagogies have been congruent to these models, whereby technical practice is situated within stable and predictable contexts. We propose the 'Functional Bandwidth of Movement Performance' (see Figure 10) as a planning tool that may assist coaches to scaffold skill development from a DST perspective across all stages of learning. Three key principles are highlighted and discussed in colour coded reference to Figure 10. Goal shooting is used as the game skill example, drawing upon a learning activity from Pill (2013).

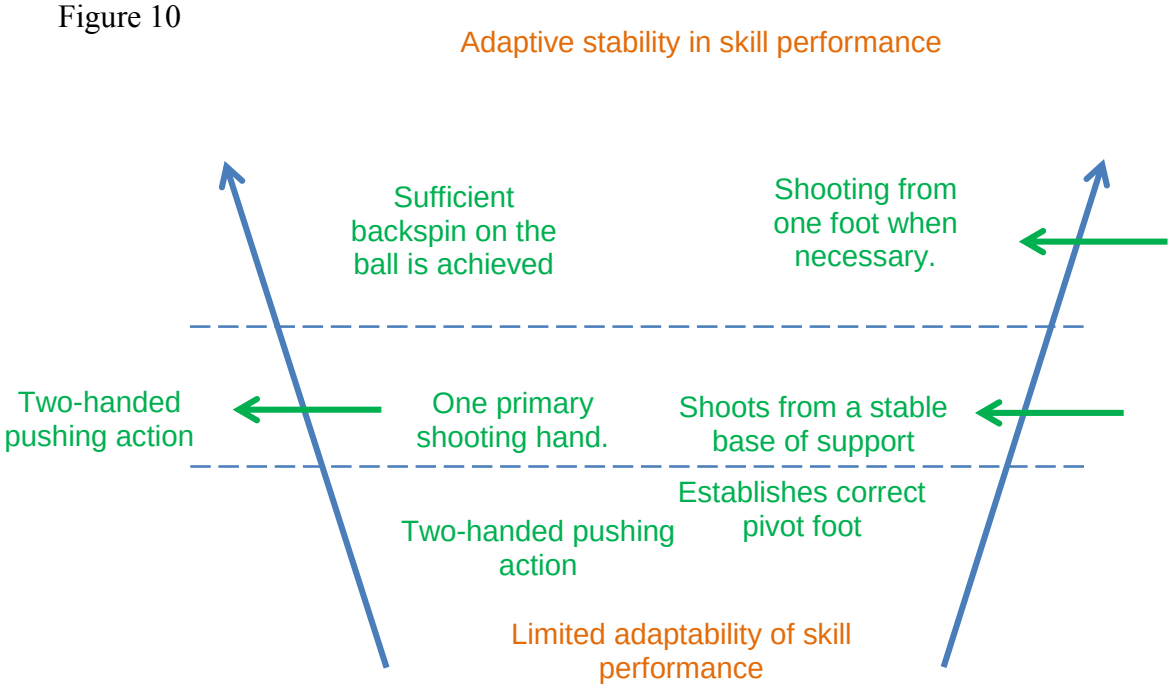
1. **Functional variability:** understood here as the spectrum of movement possibilities that satisfy game objectives within fluctuating dynamics. As indicated by the blue vertical lines in Figure 10, as skill development progresses, variability increases whereby the learner progressively assembles a greater range of Degrees of Freedom (DoF; indicated in green) into the movement performance. Davids et al. (2008) acknowledges DoF as the independent components of a complex system such as the learner, constitutive of muscular-skeletal and neurological components. For the purposes of this paper, the game skill itself is also conceived as a complex system, comprising multiple discrete movement possibilities. Increasing DoF into a movement acknowledges the dynamic nature of netball and the need to flexibly adapt with a variety of movement solutions as learning progresses. This contrasts traditional ideologies where variability is considered 'noise', interrupting consistent skill repetition (Davids et al., 2008). This is usually reflected by practice activates that remove variability from the performance (i.e. closed skill drills) and prescriptive technique checklists.

2. **Scaffolding morphing skills:** through the exploratory learning process, it is expected that shooting technique will continually morph whereby DoF are integrated and removed from skill performance. The success or functionality in satisfying game constraints ultimately dictates whether a DoF will remain part of the shooting performance. Although designer games should represent specific tactical/technical dimensions of traditional netball, their modified nature inherently means that 'dead-end' techniques may arise across various learning stages. Launder (2001) describes dead-end techniques as those that enable initial game-play participation but are not functional as learning complexity increases. An example of this is a two-handed

pushing action, which may satisfy demands of a designer game for beginners where restrictions on defensive movements have been imposed (e.g. shots cannot be blocked). However, as learning progresses and the designer game is deliberately advanced, defensive restrictions are released rendering the two-handed pushing action unsuitable as it may be easily blocked. Biomechanical expertise and working knowledge of the complete Netball game become important for coaches to identify 'dead-end' techniques at this earliest stage of learning. It may be prudent that constraints inhibiting movement variability are relaxed at the same pace that dead-end techniques are phased out of a performance.

3. **Adaptively stable skills**: consists of both 'non-negotiable'or fixed techniques and functionally variable movements. For example, backspin imparted on the netball from a downwards rolling or flicking motion of the fingers when shooting, finishing with the hand and arm in a swan neck position is a non-negotiable technique. From a biomechanical perspective, backspin may cause the ball to spin downwards into the nett upon contact with the back of the ring, relative to the shooters position. Conversely, functionally variable movements differ from player to player but still successfully satisfy game constraints. Here, individual/physiological constraints influence how each player may optimally perform a given type of movement or technique. An example of this is the extent of knee bend within the shooting motion. Shorter players or those with shorter arms may rely more on generating kinetic force into the ball with a larger knee bend. Taller players may have a reduced knee bend but use a slightly greater range of motion with the extent to which their arms move to generate force behind the shot.

Figure 10



At each vertical level of the Functional Bandwidth, learning may be progressed or introduced to promote/discourage DoF within netball goal shooting. Biomechanical expertise can assist coaches to classify DoF for a given skill as functional variable (as influenced by individual constraints) or largely fixed.

Table 1: An example of a Game Sense Netball coaching session for novice players

Tactical problem	**How do you force a turn-over via zone defence?**
Focus	Develop awareness of ball movement in conjunction with off-the-ball attackers to identify and defend dangerous space.
Modified game	Defensive Balance (Pill 2008).
Examples of developmental questions	• Where is dangerous space? • How can defenders position themselves to see the ball carrier and dangerous space? • What should you do if an attacker gets the ball near you? • Who should we prioritise defence to if we're split between two attackers (split too far to guard both)? • Where should you try to force the ball to?
Practice task	Pass to a marked team-mate (Figure 7: Pill 2014) with passive defence.
Return to modified game	Defensive balance (version 2).
Conclusion	How did you work together to defend dangerous space?

Table adapted from (S. Pill, 2014)

Conclusion

We advocate a shift from conceptualising skilled performance as static, deterministic configurations that fail to recognise the influence of perception-information coupling. The second imperative is to create learning opportunities that deliberately encourage learners to assemble functional DoF that meet task demands. However, far from simply engaging in game-play, deliberate scaffolding must occur to link specific information sources within game play practice with the player (Chow et al., 2007). In this coupling process, GS coaching promotes the exaggeration, control or elimination of player behaviours in association to specified information sources of focus through designer games. To assist in managing the

perceptual information load, designer games are created that focus learning on a specific component of the game-play system.

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Managing Practice Games in Game Sense: Reflection on Teaching Touch Rugby in Asia

Professor Richard Light
University of Canterbury

Game based approaches (GBA) such as Game Sense can provide high quality teaching and coaching when authentically implemented (Light, Curry & Mooney, 2014; Pearson, Webb, & McKeen, 2006) but present a rage of significant challenges for most teachers and coaches (Pill, 2011). In particular, the effective use of questioning to foster thinking and interaction has attracted recent attention (Forrest, 2014; McNeill, Fry, Wright, Tan & Rossi, 2008; Roberts, 2011; Wright & Forrest, 2007). Game design and management is equally, if not more, important for the successful implementation of GBA yet is an area that has received less attention (Light, 2013; Thorpe & Bunker, 2008; Turner, 2014).

Drawing upon my own experiences of working with coaches, teachers and pre-service teachers in Asia this article provides practical examples of the challenges that can arise in regard to game management for learning and how they can be dealt with. It focuses on working in Asia because this is a setting that typically presents significant challenges in shifting from instruction to facilitation of learning (see, Wang & Ha, 2009). I draw on experiences of leading Game Sense workshops on touch rugby in Japan and Taiwan in 2013 and 2014 to provide practical examples of the challenges that arise when teaching using GBA and my attempts to find solutions to them focused on the management of practice games. I use touch rugby because of the conceptual challenges that it presents for learners who have not been exposed to the rugby codes.

Game Management

In their presentation at the 2008 TGfU International conference in Vancouver Rod Thorpe and David Bunker emphasized the importance of 'getting the game right' when taking a TGfU approach. Learning through GBA involves the interplay between conscious, rational and non-conscious, embodied learning as what Light and Fawns (2003) refer to as a 'conversation' between the body in action and the mind in speech. This involves implicit learning through processes of adaptation to the constraints of the practice game or activity that is brought to consciousness through reflection and interaction in and after action in what is often referred to as the debate of ideas (see, Gréhaigne, Richard & Griffin, 2005).

In a GBA lesson or training session we can lose sight of the central importance of being able to improve knowledge-in-action (Light & Fawns; Schön, 1983). Designing an appropriate practice game is the starting point from which the skilled teacher/coach uses a range of tools at

hand to modify to maintain a level of challenge that can engage learners on a team/class basis or might vary between the different small sided games being played (Light, 2013). The tools at hand include (1) varying the size, shape and dimensions of the playing space, (2) varying the number of players and/or the ratio of players (eg. 5 V 3 or 6 V 2), (3) changing the rules of the game and changing the equipment such as the type and number of balls used.

Learners who have adapted to the empowerment and increased responsibility provided in GBA are typically involved in the modification of practice games as an important part of the learning process and which forms the central mode of learning in the inventing games or student designed games approach (see, Hastie, 2010). With learners less accustomed to GBA the teacher/coach takes more initial responsibility for the analysis of learning/performance in practice games and the appropriate adjustments required to maintain optimal levels of engagement and learning.

Reflections Upon Practice and Sharing Experience

Work in the scholarship of teaching and action research makes a useful contribution to both the researchers' improvement of their own teaching and toward a more general understanding of teaching and coaching. Each study in this field is specific to the particular context it is conducted in which makes it very difficult to generalize from but this is not their aim. One of their strengths is how they highlight the profound influence of context on teaching and learning while also highlighting the very personal nature of teaching and coaching (see, Evans & Light, 2008). While they often involve an intervention in teaching and may set out to assess learning or learner's affective responses they can also focus on critical reflection by the researcher/practitioner and this is the approach I take in this article.

The Challenges of Game Management

In 2013 I was invited to Japan to run a Game Sense workshop for primary generalist and secondary physical education pre-service and in-service teachers. Despite the large number of rugby players in Japan only a few of the learners had a sound understanding of it or had played it. The rules that require moving forward to score but not being allowed to pass forward, the offside rules and the straight line of confrontation between attack and defence present a huge conceptual challenge for learners and teachers without prior experience of rugby.

Approaches like Game Sense and TGfU are based upon assumptions about some existing exposure to the game being taught or of games in the same category that can be transferred or adapted to the task at hand. When this is not the case it typically requires some changes in the approach. When teaching in France in 2007 I introduced university undergraduate students to

Australian football using a Game Sense approach. They were able to draw on their knowledge of other invasion games such as rugby, football (soccer) and handball to quickly understand the new game and enjoy playing but teaching them cricket was a far more difficult task due to their exposure to striking games such as baseball or softball. Progress was further impeded by some of the technical challenges involved in batting and bowling as quite unnatural movements. I responded by briefly reverting to direct technical instruction and then slowly placing them in less structured, more contextualized activities but moved into a Game Sense approach as soon as possible.

Japan

In a 2013 workshop the Japanese learners moved into space forward of the ball carrier looking for a reception because they were not used to the comparative restrictions of the off side rule in rugby union (including sevens), rugby league and touch rugby (first developed as a rugby league training game in the 1960s). This places the players in an off side position and out of the game. In this situation the ball carrier has to run forward with the ball to put his/her teammates onside with players off the ball having to come in from behind the ball carrier to provide support and options in attack. It brings a different dimension to the notion of manipulating space such creating space for a support player to move through and the timing for the pass.

I worked with 40 participants because this is a normal class size in Japan. We began with 'passing in traffic' (Light, 2013), which involves passing and running up and down a grid when other groups are doing the same which creates having to negotiate groups running at you. We then worked through passing the ball in groups of four down a 50 x 20 metre space to beat single defenders who could only move laterally and who were 15 metres apart. This was followed by small-sided games of touch rugby with 10 learners per grid (which was wide and short) and uneven numbers of defenders and attackers that I adjusted to suit each game. The relatively simple passing activities began smoothly but became more challenging for me as the teacher/coach with increasing complexity.

As skill and understanding seemed to grow I introduced more rules from the full game such as limiting the number of touches with a turn over when reaches and an offside rule but when I introduced the roll ball the pace and progress of the session stalled. This rule requires the touched player to face the opposition try line and roll the ball between his/her legs to a player standing behind called the 'dummy half'. The defending team was also asked to have a 'marker' who stood in front of the player rolling the ball to prevent losing the advantage in numbers the attacking team had. I had 4 small sided games of 5 V 5 that I changed to reduce the pressure from the defence and facilitate successful play by the attacking team that, in some cases,

involved an 8 V 2 format. From here I moved players from defence to attack as their performance improved, eventually offering the learners the decision-making power to adjust numbers and rotate players. Toward the end of the workshop we were able to have four games of 5 V 5 but on very wide and short playing spaces to enhance attack by creating lateral space to finish with an enjoyable experience for the participants.

Taiwan

In 2014 I taught four, 50 minute lessons in touch rugby to teachers and pre-service teachers in Taiwan over two days but asked for the same 20 participants to come to every one of the for sessions because of the importance of scaffolding on prior knowledge. When poor skill prevents the (modified) game from progressing there are two responses that vary a little between different GBA. In Taiwan I was confronted with this problem quite early in the workshop and had to do some direct instruction to get things moving. I did not stop the activity but instead, stopped the class when I felt it necessary to emphasize aspects of skill execution. For example, I had to regularly encourage the ball carrier to sprint two or three steps after receiving the ball to get in front of his/her teammates. I also had to regularly remind players in the attacking team working off the ball not to get in front of the ball carrier and come from behind the ball carrier to offer him/her options in attack.

The first sessions was similar to what I outlined for the 2013 workshop in Japan but progress in the second session stalled when I introduced the roll ball and the need to stop and quickly retreat into position behind the 'dummy half' as it did the year before in Japan. I introduced some opposition in a 6 V 3 game but the progression of the session broke down with attacking support players unable to adapt to the need to continually drop back after each touch to be in position for the next play. This is something unique to the rugby codes and quite unnatural for those who have grown up with other invasion games. This session finished in frustration for me and I had to find a solution overnight.

In session three on the next day I changed the dimensions of the playing space and introduced a drill. I changed the activity for learning how to align in attack to focus thinking on getting back in position for the roll ball. We played in teams of four, unopposed, beginning with a roll ball in a structured *drill.* After each roll ball the ball had to be passed three times with the last receiver sprinting straight for three metres and stopping to wait for the others to line up in a vertical line behind the player with the ball. When all were in line the last player called which way to run (left or right) after which the ball was passed along the line to repeat the pattern. As they improved performance of the drill I encouraged them to be creative and try some variations

by demonstrating a few options such as looping around the ball receiver to create a 2 V 1 situation.

The day before we had played two games on two basketball courts running lengthways which had contributed the lack of progress. To provide more lateral space we played *across* the courts, providing a short, wide space. From this point on learning progressed well, enabling us to finish with 5 V 5 games of touch rugby played on spaces wider than they were long and which encouraged scoring and with the vigour, engagement and joy I had seen the year before in Japan.

Conclusion

In Game Sense game the aim of game design is to create the best possible learning environment for achieving the specific aims or objective of the class or session. Here I have drawn on my experiences of teaching to provide some examples of how I dealt with the particular challenges involved in doing this for me, in particular settings but this is not intended to be prescriptive in any way. To maximize learning and enjoyment, practice games need to be adjusted and managed to attain and maintain an optimum level of challenge that promotes deep engagement (Light, 2013). This requires having a good eye for how students or players are learning on an individual and collective basis and being able to use the 'tools' at hand to manage the modified games. This includes, but is not limited to, the size, shape and dimensions of the playing space, the number of players, the ratio of defenders to attackers, the rules and the degree to which the activities/games are structured. Game Sense and other GBA can deliver high quality learning but uses pedagogy that presents a significant challenge for most practitioners (see, Thorpe, 2008).

Skills are an important part of game play but should be developed through appropriate practice games, along with other aspects of game play such as tactical knowledge, decision-making ability and awareness because they are all interrelated (Gréhaigne, Richard & Griffin, 2005). When skills do not seem to be up to the demands of the game there are two typical teaching/coaching responses. One is for teachers or coaches to stop the game and conduct some specific skill work to bring it up to the level required for the practice game to be played satisfactorily and this is actually built into the Tactical Games approach (see, Griffin, Mitchell & Oslin, 1997). The other is for the teacher or coach to alter the skill demands of the game through game management, which has the advantage of maintaining the holistic approach to learning and what the 'essence' of the Game Sense approach (Evans, 2006). The most important focus of game management is on the progression of learning and learner engagement. This is directly linked to providing appropriate levels of challenge that learners can meet individually and collectively.

As this article suggests, authentic implementation of the Game Sense approach takes considerable pedagogical skill and is far more challenging than merely playing games for learning. The different relationships between teacher/coach and learners, the effective use of questioning and the design and management of practice games and activities to maintain maximum engagement present significant challenges for teachers and coaches wanting to take up any GBA. As difficult as it may, be the possibilities for high quality teaching and coaching it offers suggests it is worth the effort at an individual and institutional level.

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The SHAPE of Australian football: A discussion-based paper on the challenges embedded throughout the participatory journey

Dr Sam Elliott, Dr Deb Agnew & Professor Murray Drummond
Flinders University

In 2014, Flinders University launched the Sport, Health and Physical Education (SHAPE) research centre in Adelaide, South Australia. The theme of the launch was appropriately titled 'The SHAPE of Australian football and sport in the 21st century' to showcase SHAPE's multidisciplinary research agenda around Australian football and sport. The event provided an opportunity for key stakeholders in sport industry to learn about SHAPE's mission to tackle a range of issues in sport, health and physical education through high-quality, collaborative research. More importantly however, the launch revealed a number of immediate challenges for Australian football and sport across the broad participatory spectrum. This paper infuses two distinct research areas that emerged from the launch which bring focus to issues situated at the beginning and end of the Australian football experience. That is, (1) the early sport experiences encountered by children and youth in the formative years, and (2) issues surrounding retirement from Australian football at the elite level. The first research field illuminates the role of parents in the youth sport setting and the challenges they pose for children commencing the Australian football journey. The second research field identifies the complex challenges facing players upon their exit from a playing career in the Australian Football League. This paper, we argue, highlights 'real' and present sociocultural issues which will need to be addressed if Australian football and sport are to successfully move into the future. The importance of pursuing these research agendas is also considered.

Introduction

Australian football, or 'Aussie Rules' as it is colloquially known, remains one of the great sporting traditions in Australia. According to the Australian Bureau of Statistics (2012), over 226,000 boys and girls currently participate in junior Australian football. Significantly, only Swimming, Dance and Soccer boast stronger participatory trends, underscoring Australian football's status as a predominant and popular organised sport in Australia. While this perpetuates a promising view, the recent launch of the Sport, Health and Physical Education (SHAPE) research centre at Flinders University, Adelaide, revealed a number of significant sociocultural challenges for Australian football and sport more broadly. This critical commentary infuses two key research agendas of the SHAPE research centre, located within the participatory journey to portray the current state of Australian football, including the topics of (1) parents in children's and youth sport, and (2) life after retirement, thus representing the 'beginning' and 'end' of the participatory journey. It is acknowledged that there are participants in Australian football who do not go on to play in the elite competition

yet face challenges throughout their participatory experience in amateur league and community games of football. These challenges include significant financial barriers due to the federal sport policy focusing on elite sport development (Toohey 2010), and competing tensions between sports clubs promoting health and physical activity yet being reliant on revenue raising measures that are contradictory to health such as selling alcohol and providing gambling facilities (Johnson et al. 2007). However, this paper specifically focuses on the entry and exit points of the participatory journey, therefore the 'middle years' is beyond the scope of this brief commentary paper.

The early years

Typically, the early years of sport (6-12 years) are characterised by an emphasis on play in unstructured and modified sporting activities, where fun and enjoyment are the substantive outcomes of participation (Bernstein, Phillips, & Silverman, 2011; Côté, 1999). This foundation is critical given that positive experiences in the formative sporting years strongly predicts continuation behaviour in physical activity across the lifespan (Kjonniksen, Fjortoft, & Wold, 2009; Taymoori, Berry, & Lubans, 2011). However, a body of research indicates that children who are most likely to discontinue in sport are those who experience low levels of fun and enjoyment during childhood (Butcher, Lindner, & Johns, 2002; Enoksen, 2011; Fraser-Thomas, Côté, & Deakin, 2008; Rottensteiner, Laakso, Pihlaja, & Konttinen, 2013; Wall & Côté, 2007). Therefore, in order to foster sport continuation behaviour, adults involved in the provision of sport should endeavour to minimise aspects which are counterintuitive to the promotion of fun and enjoyment while simultaneously working to optimise the aspects which enrich the experience.

Central to this discussion is the role of parents in children's and youth sport. Parents not only play an important role in enabling sport opportunities, but also influencing children's enjoyment of sport. Ullrich-French and Smith (2009) argue that, in combination with peer relationship quality, supportive parental involvement is a strong social and motivational predictor of sport participation. Similarly, numerous studies have found that positive parental involvement in children's and youth sport is readily associated with greater enjoyment and motivation (Fraser-Thomas & Côté, 2009; McCarthy & Jones, 2007; McCarthy, Jones, & Clark-Carter, 2008). However, parental behaviours can also be counterproductive in creating, maintaining and perpetuating an enjoyable sport climate (O'Rourke, Smith, Smoll, & Cumming, 2013). For example, Goldstein and Iso-Ahola (2008) investigated the concept of sideline behaviour in youth soccer and reported a range of parental issues such as yelling aggressive comments, walking away from events, making offensive gestures and confronting other spectators. Research has also found that parents can create conflict with coaches and engage in a range of unsavoury behaviours (Elliott & Drummond, 2011; 2013; 2015). Similarly in youth soccer, it is well documented that many parents frequently engage in verbally abusive behaviour toward umpires and officials (for example, Bowker et al., 2009).

Knight, Neely, and Holt (2011) also claim that even well-intentioned practices such as excited and fanatical parental behaviours are not necessarily preferred by children. This underlines the complex challenge for parents striving to engender a supportive and positive influence, and reiterates the 'thin line' between positive and negative parental involvement in children's and youth sport.

In a Western society where sport provides the preferred vehicle for children's physical activity, the way that parents shape the sport climate enveloping the early years cannot be taken for granted (Elliott & Drummond, 2015). Although sport engenders a wealth of potential benefits for its participants, issues of poor parental behaviour continue to pervade the junior Australian football experience. This may not only embody a significant barrier for many children who might otherwise enjoy the sport, but also leave a footprint on the early sporting years which can discourage physical activity altogether, thus, locating the first major challenge in the participatory journey.

The elite years and beyond

Australia football comprises one of the cornerstone participatory experiences for Australian children (ABS, 2012). A significant proportion of boys participate in Australian football with the goal of 'making it' at the elite level (Drummond et al., 2013). However, the chances of doing so are relatively small and perhaps more importantly, the chances of making Australian football a worthwhile and viable career option is limited. The average Australian Football League (AFL) career is just 2.9 years or 34 games with less than 10% extending their career beyond 200 games or 10 years (Hawthorne, 2005). Yet despite this, many young boys participating in Australian football devote a significant proportion of their lives to football. Hickey and Kelly (2005) affirmed that aspiring young footballers are willing participants in establishing a hierarchy which places football demands as a necessary priority over all other pursuits. Particularly since young men striving for a career in elite sport frequently disassociate themselves from their education long before they leave school, they can overlook the necessity of an alternate career path (McGillivray & McIntosh, 2006; Coakley, 2009). When an AFL career is either not realised or finished, young boys and men often have unfinished or no other qualifications in which to begin an alternative vocation, despite there being a substantial period in which a new career must be forged. The singular focus on football creates a tension for young men between the perceived necessity to give football everything they have and their recognition that they should have interests outside of the sport (Hickey & Kelly, 2005).

While life as an AFL footballer is described as 'the perfect life,' fantastic and enjoyable, it also requires significant commitment, sacrifice and is quite demanding (Agnew, 2011), which perpetuates the singular focus on football and leaves little space for outside interests. Indeed, Hickey and Kelly (2007) argue that the subculture of football imposes

subordinate non-football demands, which leads to the construction of young boys' identity being almost exclusively through sport. It is recognised that because of the unpredictable nature of the game, the construction of identity should not purely be through Australian football as this has significant implications upon retiring (Agnew & Drummond, 2015). However, while there is evidence that having interests outside of professional sport is beneficial for preparing for post-sport life, conflicting perceptions from athletes and coaches imply that preparing for life after sport distracts athletes from the focus they need to succeed in their sport (Saunders & Pink, 2014). Given the average AFL career is becoming shorter, the development of transferable skills for a subsequent career path is crucial and footballers need to be adequately encouraged and supported in order to be adequately prepared for life after sport (Agnew & Drummond 2015; Saunders & Pink, 2014).

An inevitable part of elite competition is retirement. The degree to which a retiring athlete experiences a successful and positive transition out of sport depends on circumstances surrounding their retirement. Those who are able to retire voluntarily experience smoother transitions than those who are forced into retirement through injury or delisting (Lavallee, Grove & Gordon, 1997; Gordon, 1995; Fortunato & Gilbert, 2003). However, regardless of the circumstances surrounding retirement, a sense of loss and sadness is common to athletes. The issues confronting retiring Australian footballers include a perceived loss of identity, status, self-esteem and self-respect, financial concerns, a perceived feeling of loss of control, and feelings of incompetence (Fortunato & Marchant 1999; Erpic, Wylleman & Zupancic, 2004; Kadlcik & Flemr, 2008). These aspects all heighten the feelings of loss experienced by the athletes.

While most athletes are able to successfully work through the transition period out of elite sport, the process can take from a few weeks to several years. For some athletes working through the changes to rebuild their lives does not happen at all. The major barrier to a successful transition for retiring athletes is not that they cannot do anything else but that they do not want to do anything else (Kelly & Hickey, 2008). The transition period can be affected by athletic and non-athletic factors, including the voluntariness of retirement, the athlete's subjective evaluation of their career achievements, the education levels of the athlete and the prevalence of athletic identity (Erpic, Wylleman & Zupancic, 2004). Athletes who maintain a strong and exclusive athletic identity through their careers often have more difficult transitions into retirement because they are less likely to pursue outside sport interests such as other career, education and lifestyle options (Grove et al., 2007; Phoenix & Sparkes, 2006). The construction of an exclusive athletic identity is problematic because there is a high rate of failure (Messner, 1987; Anderson, 2005; 2009). Certainly in Australia, footballers are afforded hero status thus being known as a footballer becomes central to identity and when careers are finished the loss of stardom can significantly affect how they transition into retirement (Fortunato & Marchant, 1999). However, while the transition period is a difficult one it can also provide an opportunity for the men to use the skills and profile

developed through the sport in their post-football lives which creates an optimistic outlook on their futures (Kelly & Hickey, 2008; Agnew, 2011).

The issues facing retiring elite Australian footballers are not unique to football. Nor are the issues likely to be unique to sportsmen and sportswomen retiring from elite levels of sports. Participation in sport, belonging to a team and devoting much of one's life to sport are key elements of the participatory experience at all levels of the game. Thus it is arguable the same issues facing elite Australian footballers as they retire are also experienced by sub-elite and amateur footballers as they leave the game. However, while there is a plethora of research on college sport transitions in the United States of America, (Baillie & Danish, 1992; Brewer, Van Raalte, & Petitpas, 2000; Beamon, 2008; Fuller, 2014; Stambulova et al., 2009; Stankovich, Meeker, & Henderson, 2001, among others), the research on the transition out of sport in Australia focusses almost exclusively on elite sports (Bennie, & O'Connor 2004; Fortunato, & Gilbert 2003; Fortunato, & Marchant 1999; Gordon 1995; Grove, Lavallee, & Gordon 1997; Kelly, & Hickey 2008) . Therefore, further research into the transition experiences of Australian footballers at non-elite levels is a much needed area of investigation. Part of the transition experience out of elite Australian football for some men includes continuing to play at sub-elite and amateur levels, which is also an under-researched area. Therefore, research into the experiences of withdrawing from the elite level through sub-elite levels and then retiring again from these lower grades is also warranted.

Implications for Australian football

This paper has outlined two distinct challenges at the beginning and end of the Australian football journey. In the context of children's and youth sport, the nature of parental involvement in the early sporting years embodies an important research agenda that warrants further investigation. Enhancing our understanding of this phenomenon may better prepare sport policy makers and sport providers to deliver a football experience that 'springboards' longer-term engagement. Equally important however, is further research on retirement from sport. There are clearly a number of critical challenges for players transitioning out of an elite AFL career, but less is understood about this issue at the sub-elite and community level. If sport and Australian football are to remain significant pursuits in broader Australian society and culture, the issues situated at the entry and exit of the participatory spectrum need to be addressed. We argue that greater scholarly attention is not only possible, but necessary for Australian football and sport to maintain and grow its social and cultural valence. Given that much of the current landscape of Australian research focusses on population health and clinical sports science, the SHAPE research centre aims to address this niche through a multi-disciplinary approach. The need to establish research with a focus on sport, community health and physical education not only provides significant opportunities for centres such as SHAPE, which is uniquely positioned to pursue timely

research but also for key stakeholders at all levels of sport to consider how they will navigate their way into the future.

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Skill Acquisition in Australian football: Some applications of theoretically informed practice

Dr Shane Pill
Flinders University

But to achieve real change Hinkley needed a lift across the board so he decided to change the way the Power trained. He ramped up the pressure on players at training by recording the effectiveness of each disposal and started filming every session. Hinkley also refined drills to make them as match-like as possible. If he's going to compare his players' kicking efficiency at training to what it's like on game day, he needs to ensure players are attempting the same types of kicks midweek as they are on weekends (Jai Bednall, The Advertiser, March 22).

The report on the change of training process at Port Adelaide Football Club explained in this quote is typical of coaches' attempts to optimise long term performance through the design and enactment of practice environments that are more variable and random in nature than the more historically common directive and prescriptive coaching. The aim of this paper is to enhance understanding of how constraints-led skill learning theory informs effective design and enactment of sport practice time. Drawing on research in complexity theory and a dynamic systems perspective the paper explains the key features, advantages and disadvantages of game-based training for Australian football. In considering contemporary skill acquisition research in relation to current Australian football coaching practice, this paper will consider the value of game-based training for improving skill and player conditioning in field invasion games. Practical implications of game-based training will be explained using kicking as the context for the exploration.

Key words Australian football, coaching, kicking, constraints, game-based

Introduction

A traditional approach to sport teaching, described by Kirk (2010) as sport-as-techniques, presents a mechanical concept of the player and leads to a fragmented mechanical instructional approach to the player and the environment. That is, movement skills are seen as bits to be assembled. Each "bit" is developed in an additive "one-by-one" progressive-part and linear approach towards developing the whole technique once all the bits are assembled. This reductionist ontology holds that a technique is nothing but the sum of its parts and so an account of a sport technique can occur through an interpretation of the individual components of an idealised, sometimes referred to as "textbook", technique. The prescriptive motor models that result are euphemistically called 'skills". Coaching approaches stemming from this specification of a mechanical conceptualisation of sport skill teaching come to emphasis training players to replicate "correct" techniques presumed to be common to all players.

The ontology of the mechanistic coaching approach is theoretically informed by the information processing perspective of skill acquisition. The information processing perspective suggests players are "capacity limited", therefore knowledge and understanding is programmed to develop symbolic understanding (e.g. techniques) to order movement with reference to internalised knowledge structures and motor programs consciously controlled. The metaphor of the athletes mind as a computer is invoked, with the role of the coach as programmer. As a result, a mechanised understanding of movement behaviour emerges with the sport coach a motor programmer (Handford, Davids, Bennet & Button, 1997) stemming from the information processing assumption that movements arise from plans and instructions commanded from an executive function (Clarke, 1995).

An alternative understanding of sport skill acquisition has it that decisions in sport unfold over time from two dynamics: there are the internal dynamics of the player involving a course of deliberation from information accrued over time, rather than a single point of decision assumed in the information processing model; and there are the external dynamics of the game situation, and consequently the information available to the player is constantly changing over time. Applying this alternative thinking of skill acquisition to Australian football coaching, an element of variability is inherent in the Australian football (Af) player decision making as most decisions made by Af players are while the play is in motion and consequently, while the player is under time pressure (Johnson, 2006). Araujo and Davids (2011) therefore suggest that sport skill should not be seen as fixed techniques or set technical motor patterns but as the emergence of an adaptive functional relationship between the player and the game environment, where the player is an element of a complex dynamic system. There is a place for a "spectrum of teaching approaches" (Mosston & Ashworth, 2002) in coaching as the pedagogy relates to the "purpose" and developmental appropriateness of the practice activity. However, the pedagogical argument is that activities replicating the alternatives within the dynamics of the player, environment and task requirements which are constantly changing are more likely to have transferability of learning from practice to the game.

Australian football as a complex and dynamic system

It is therefore an assumption used in this paper that invasion games like Af can be understood as a system composed of a number of mutually interdependent parts forming a complex system. Two features of this complex system are universality and non-linearity. The game of Af is non-linear as the behaviour of the system is not simply the sum of its parts. Patterns emerge from the behaviour of the players acting in an attacker-defender relationship, and these patterns help explain the system dynamics; but these patterns can only be understood in relationship to the contexts within which they occur. Patterns emerge in part because the system has goals defining the reason why it exists, and in part because the agents try to bring order to the seemingly complex behavioural dynamics that may appear otherwise to be random and therefore chaotic. The game of Af is thus non-linear as players shape and are shaped by the environment; but perhaps paradoxically the play can be understood as prototypical scenarios

capturing a reciprocal relationship between the player and the environment, providing the information from which the players act in the game environment which is constantly changing. As a complex system, the game of Af also then contains universal properties that do not depend on the details of the system (specific game) being studied. For example, a kick at goal can be interpreted as one moment in a multi-dimensional state-space of all possible kicks at goal. The performance value of the kick is associated with a complex movement coordination pattern that is distinct (Gottfried, 2001) and therefore "universal", but then actioned within the situated dynamics of a game and thus always unique to the moment. This implies two things: patterns of play can be used as methodology to teach game strategies and in the moment tactical behaviour; and there is no best way to execute a particular technique, rather the form of the movement is determined by the movement goal, context within which the action occurs, and individual player constraints, all of which are continuously changing from moment-to-moment in the game (Pill, 2014).

This understanding of sport skill differs from coaching traditional informed by a mechanistic epistemology and information-processing perspectives. Focussing specifically on Af, the game can be understood as an interactive process and so player behaviour is emergent from interaction rather than being the display of fixed notions of technical ability and athletic capability. The interactive process involves the player in the search for successful behaviour. I therefore suggest the challenge for the Af coach is not in the planning of activities to display the motor abilities of players (such as displayed in run off the line drills) but in replicating the alternatives within the dynamics of the player, environment and task requirements which are constantly changing, so as to reflect the momentary situations of the game during practice. I suggest this is reflected in the opening quote; *If he's going to compare his players' kicking efficiency at training to what it's like on game day, he needs to ensure players are attempting the same types of kicks midweek as they are on weekends"*

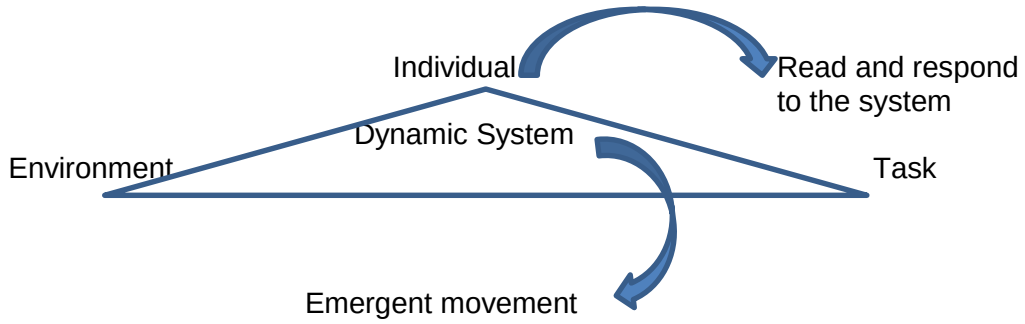


Figure 1. Player movement (reacting) is information-movement coupling through perception (reading) and decision making (responding) to the dynamics of the system (game). Therefore, practice tasks should maintain high fidelity to the dynamics of the game.

Coaching informed by complexity and a dynamic systems perspective is influenced by a relational ontology and directed towards a constructivist epistemology that foregrounds

teaching and learning for understanding. Coaching is thus understood as a process of providing information about the game to establish principles or by which the emergent patterns of play in a game can be recognised, understood and responded to in order to achieve goal directed behaviour. Coaching focuses on representation of the game rather than the abstraction of techniques. That is, the coach attempts to simulate aspects of the performance environment in the training environment. These simulations of the game need to be high in action fidelity because in this coaching perspective it is thought that task design which does not adequately represent the performance environment may: 1. Not enable the coach to accurately analyse the critical aspects of performance requiring training; and 2. Not support further task development or the development of further practice tasks to achieve the learning goal (Davids, Araujo, Vilar, Renshaw & Pinder, 2013).

The game behaviours practiced at training will create what one might call a playing "identity" arising from the team's attempt to reduce uncertainty through awareness of what should happen individually and collectively to create a functional response to identified moments of the game. This is not to suggest "robotic" responses, but the reduction of uncertainty by understanding the universality of aspects of the game dynamics as time series patterns, which can be characterised by situation (eg. players positioning on the ground) as activities (the movement of players) (Garganta, 2009).

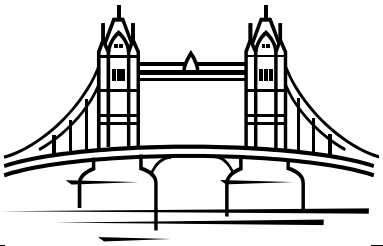
The role of biomechanical knowledge in game-based coaching of Australian football

For novice Af players (such as children) however, task simplification does require an environment to assemble an appropriate coordination pattern for kicking (which we might call a technical model) which satisfies the task constraints of Af and which becomes increasingly stable over time. Stable, however, does not mean rigid and "textbook" perfect but implies a technical model that is flexible and adaptive to the needs of the momentary and situated dynamics the player finds themselves responding to. In proposing game like environments for this skill learning it is therefore not being suggested biomechanical understanding of skills is marginalised or ignored. To be able to assess changes in the coordination patterns of skills such as kicking over time necessitates a biomechanical description, and understanding the biomechanics of kicking aids understanding of the design and implementation of training conditions, as well as where the coach may intervene. The concept of "functional bandwidth" (Magias, 2014) is useful to this understanding of the role biomechanical understanding in the development of skill adaptation. That is, a) movements may not be functional to the system dynamic and may never be; b) movements may become functional with further time and persistence, and c) movements may be highly functional and adaptive to the system dynamics. A focus on the functions the motor skill of kicking serves in the dynamics of the game leads to a consideration of possibilities and a repertoire of responses. The establishment of a performance bandwidth assists coach understanding of how much deviation from the standard technical model can achieve functional effectiveness and correction occurs when there is deviation outside the range of "correctness".

It was earlier stated that the individual can be considered a dynamic system. Part of coaching kicking is to consider the player dynamics and what movements lay within the "functional bandwidth" of the player, and that this will vary player-to-player due to the complexity of individual player coordination dynamics. Biomechanical understanding is necessary to assess the functional bandwidth of each player. Biomechanical understanding of kicking therefore informs the process of training as well as the development of adaptive technical models that "hold up" during play (Davids, Lees & Burwitz, 2000).

Application of theoretically informed practice- game based coaching as a constraints-led perspective

Two pedagogical approaches have been posited as consistent with complexity theory and a dynamic systems perspective and a focus on game-based training. They are the constraints-led perspective (Handford et al., 1997; Davids et al., 2008) emerging from the field of sport science and skill acquisition, and the game sense approach (den Duyn, 1997) emerging from the field of coaching pedagogy. Rather than dissect the nuanced interpretation of each as game-based approaches to sport coaching I will recognise the synergies between the approaches as non-linear pedagogies to metaphorically "build a bridge" between the two discourses. This synergy is summarised in Table 1.



Constraints-led approach	**Game Sense approach**
Start with a 'game'	Start with a 'game'
Focus game learning by modifying game constraints in three domains- performer, task and environment	Modify the game to focus particular learning by reduction and exaggeration of game elements
Shape and focus practice tasks using questions and challenges	Shape and focus play practices and designer games using questions and challenges
Representative practice task design to retain fidelity to the game and enable transfer of learning from practice to play	Designer games retain representation to the full game form
Learning is an ongoing process of adaptation	Learning is an ongoing process of adaptation
Patterns of play can be described as action models that assist player understanding of the attacker-defender relationship	Principles of play common to games in the same game category (Invasion, Net/Court, Striking/Fielding, Target games) are recognised to assist player understanding of the tactical dimension of play

Table 1. A bridge between two perspectives- Key features of a constraints-led approach and the Game Sense coaching approach (Breed & Spittle, 2011; Davids et al., 2008; den Duyn, 1997; Light, 2013; Pill, 2012; Renshaw, Chow, Davids & Hammond, 2010; Schembri, 2005)

Table 1 illustrates that the game sense approach is similar to the perspectives of a constraints-led pedagogy (Breed & Spittle, 2011; Pill, 2012). Practice includes the manipulation of constraints to create training conditions with high fidelity to the game for effective transfer from practice to play of what is the intended learning, and the role of the coach is to guide and shape the focus of learning rather than to dictate practice. This is unlike the common Af coaching that views the task, performer and environment often as variables to be trained separately. For example, Af kicking is often trained in drill situations like the one shown in Diagram 1. Farrow's (2010) Australian Football League (AFL) kicking skill report commented that this is in reality "a wasted practice opportunity that will provide little transfer to the competitive setting" (p. 2). Even as warm-up drills, Farrow questions the relevance of these activities unless they are planned to include thoughtful interaction between the player and environment to require a task that has some resemblance to game requirements and therefore facilitates skill adaptability in players kicking. The variation of a "lane work" drill shown in Diagram 1 provides repetitive practice of essentially the same kick – similar distance, angle, ball flight. The information-movement coupling inherent in player skill adaptability to meet the performance needs of the game is not present in any form in this type of practice task.

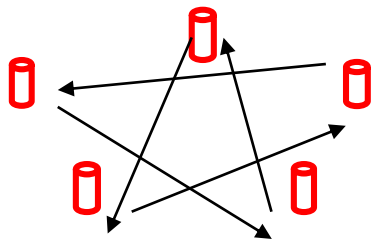


Figure 2. "Star" kicking drill. Players run from the markers, as indicated in the direction of the arrow, to receive the kick from a team-mate and then kick to the next team-mate in the chain of possession. Both the kick and the running of the player follow the direction of the arrows shown in the diagram, which creates a star running pattern.

Game-based coaching is potentially more challenging than if predominantly using the more common and traditional reproductive "drill" approach as game-based coaching relies on the skilled observation during the practice task of players, team dynamics, the reciprocal attacker-defender relationships, and inquiry processes such as the use of well-considered questions to determine what players are learning and to what extent. Game-based coaching is however considered player/athlete-centred (Kidman, 2005) rather than coach centred because of the emphasis on player learning through understanding.

Table 2 provides examples of constraint manipulation to teach Af kicking in game based practices. It should be noted that what is considered game based and "game like" will differ depending on the age and developmental progression of the Af player. Novice junior players developing coordination and control of their own movement dynamics while being introduced to sport skills like kicking in "fundamental" movement skill programs, such as the AFL Auskick program, will think of a game and game like practice differently to more experienced and skill adapted players. The novice will require simple representations of the game of Af that can be progressed in representative complexity as skill adaptability occurs. Experienced players, on the other hand, will benefit from what Charlesworth (1993) described as *designer games* that conflate technical, tactical and fitness game development into the one training task. The point here is that it is important for the coach to find the challenge point so that the practice appropriately engages players in achievement of the learning outcome (Guadagnoli, 2007) for coaching to be an educational enterprise (Jones, 2006).

"Change It" (Schembri, 2005)	**Constraint**	**Example**	**Skill**	**Learning Outcome**
Coaching Style	Player	Guided discovery	Player problem solving	Develop independent player thinking and cognition
How to Score	Task	Type of kick	Can only score using a check-side kick	Develop flexibility and adaptability to situations
Area of the Play Space	Environment	Indoors	Low ball flight	Challenge kicking style to adapt to the environment
Game Rules	Task	Type of kick	Must kick off one step	Generate lower limb speed without running momentum
Equipment	Task	Ball type	Kick using a tennis ball	Challenge precision of the ball drop
Inclusion of special needs	Player	Develop non preferred side	Restrict kicking to non-preferred foot	Develop flexibility and adaptability to situations by not being one side dependent
Time	Task	Restrict time in possession; eg. must kick the ball within 5 steps or 5 secs of gaining possession	Speed of ball movement	Challenge decision making and execution

Table 2 Examples of constraint manipulation to teach Af kicking (adapted from Farrow, 2010)

A practical application of game-based training for Australian football

Diagram 2 illustrates a designer game to develop Af kicking skills. It is an example of an overload game where the "offensive" team have more numbers than the defensive team to assist the likelihood of success of the offensive play. Nine offensive players (blue) set up as shown against seven defensive players (red). The objective is for the offensive team to move the ball by foot from the team's defensive goal square to score by getting the ball to a player running into the target area (blue) in as few kicks as possible or as quickly as possible without losing possession. If the defenders win possession they aim to score a goal (red goals). Play restarts with the offensive team kick in from their defensive end goal square after a goal is kicked by either team. The winning team is the one scoring the most goals in the time allowed for play.

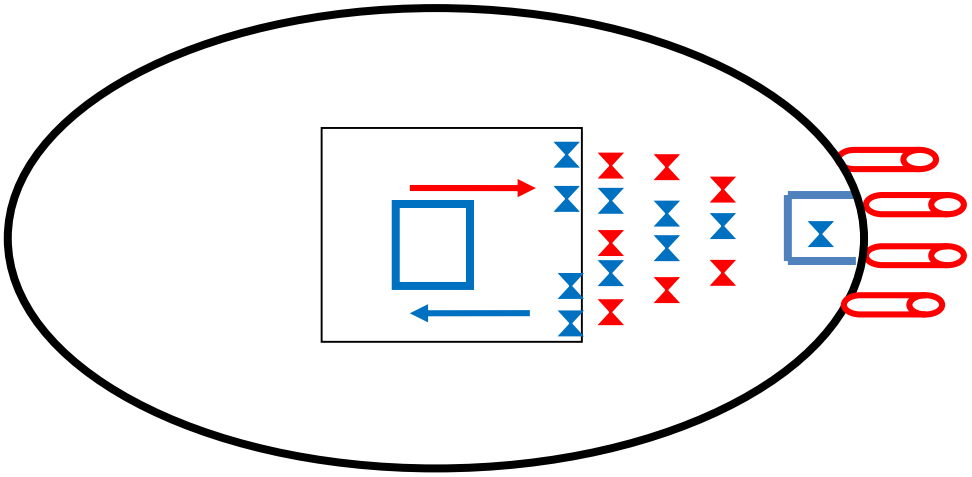


Diagram 2. A *designer game* to develop Australian football kicking skill adaptability.

Game-based training has been associated with greater cognitive effort because it incorporates game related decision making not evident in typical open and closed drill practice typical of Af practice coaching. Cognitive effort is an important condition for skill learning (Gabbett, Jenkins & Abernathy, 2009). However, one of the difficulties in adopting game based coaching through coaching models like the game sense approach is the trend toward a game sense vs. skill-based training debate creating conceptual confusion about the pedagogy of game based training.

Collingwood champion Nathan Buckley says football needs to shift its focus back to kicking and other fundamental skills (Fjeldstad, January 31, 2010)

The "tactical vs technical" paradigm represented in the above quote is, I believe, a miss-understanding of the game sense coaching model and the emergence of skill under constraints explained in the introduction to this paper. Game based approaches implemented through

constraints-led perspectives like the game sense coaching approach do not suggest the elimination of drill based practices. Games based coaching through a model like the game sense approach is implemented using a five-step process:

1. Warm-up
2. Play a modified or conditioned game, or a match simulation.
3. Guide player discovery of what they need to do in order to play the game successfully through an inquiry and problem solving process.
4. Focus learning on the tactical and technical dimensions of skilled performance, including isolating technique practice or situated play practices from the game using drills if necessary.
5. Continue to shape the game or match simulation so that skill adaptation is further encouraged.

If technical deficiencies in a player's kicking mechanics are the limiting factor in the player's game performance then skill drills might be the appropriate strategy to focus learning. Furthermore, a game sense vs. skill (technique)-based training debate indicates a lack of understanding of skill as comprising technical and tactical dimensions as complimentary pairs (den Duyn, 1997; Smith, 2014). Confusion may also arise when game sense is used as a synonym for the perception-decision making competency also referred to as "game intelligence" (Pill, 2014).

Finally, Williams, Davids, Burwitz, & Williams (1994) observed that inexperienced players tend to "ball watch" while experienced players focus on the developing pattern of play by observation of the positioning and movements of players "off the ball". It is my experience that this tendency develops when skill is developed as technique reproduction out of context of the performance environment as the information-movement coupling occurring through the reciprocity of performer-environment dynamics has not been part of the learning experience.

Conclusion

Magill (1993) noted that the transfer of practice to the game depends on the extent to which practice represents the game. Contrary to the traditional and still common idea that only highly structured and deliberate repetitive type training can lead to the development of kicking expertise it has been suggested in this paper that Af kicking skill performance is better thought of as skill adaptability best developed through game-based training.

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Development of a K-10 Food and Nutrition Curriculum Framework for use in Australian Schools

Samantha Baker, Margaret Miller, Amanda Devine and Stacey Waters

Edith Cowan University

Development of a K-10 Food and Nutrition Curriculum Framework for use in Australian schools

Samantha Baker [1,2], Margaret Miller [1,2], Amanda Devine [2], Stacey Waters [1,2]
[1] Child Health Promotion Research Centre, Edith Cowan University, [2] School of Exercise and Health Sciences, Edith Cowan University
Contact: samantha.baker@ecu.edu.au

INTRODUCTION

National introduction of the Australian Curriculum to schools provides a new opportunity to integrate teaching of food, nutrition and healthy eating in a range of learning areas to increase nutrition literacy of school children. Development of a K-10 Food and Nutrition Curriculum Framework was the first component of a larger project; to develop a suite of online food and nutrition curriculum support materials (***Refresh.ED***) targeting teachers of kindergarten through to Year 10 (K-10). The goal of *Refresh.ED* is to increase knowledge and skills in nutrition, healthy eating and related food literacy amongst Western Australian children aged 4-16 years.

AIM

The aim of this poster is to describe development of a Food and Nutrition Curriculum Framework which defines and describes the key themes, messages and content needed to develop children's food and nutrition awareness, knowledge, understanding, application and critical analysis as they move from kindergarten to year 10.

METHODOLOGY & RESULTS

Literature review

- A comprehensive literature search was conducted to retrieve published research and project reports that may inform development of the K-10 Food and Nutrition Curriculum Framework. Focus was on identifying:
  - Theories and models relevant to developing or changing young people's nutrition knowledge, skills, behaviors and attitudes;
  - Existing food & nutrition curriculum frameworks;
  - Relevant content of the Australian Curriculum;
  - Best practice pedagogy; and
  - Existing nutrition curriculum materials
- The outcome was a draft framework outlining the scope and sequence of key content across four themes and five developmental stages. This drew heavily on the European Food Framework developed through expert consultation in 2010-11[1], along with theories of development of children's learning and eating habits [2,3]; and consideration of the Australian Dietary Guidelines [4].

Stakeholder forum

- This forum was attended by 30 expert practitioners and academics in the fields of nutrition and education.
- The key focus of the forum was:
  - To workshop themes and stages of the draft Food and Nutrition Curriculum Framework
  - To review content descriptions in each stage and identify any which were missing, redundant or irrelevant

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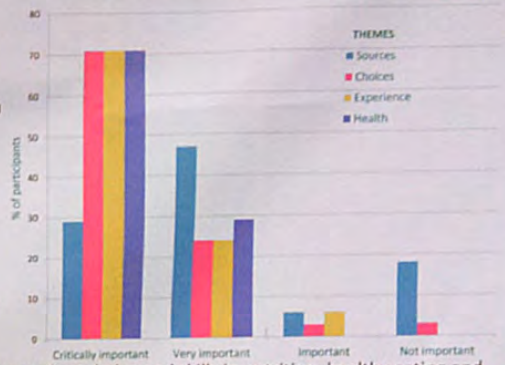
Two-round Delphi survey

- Stakeholders participated in a two round Delphi survey to validate the draft Food and Nutrition Curriculum Framework .
- Twenty- nine of 30 expert forum attendees consented to participate
  - 25 participants (89%) completed Round 1
  - 17 participants (61%) completed Round 2
- This survey questioned participants on the:
  - Importance of themes to increase knowledge and skills in nutrition, healthy eating and related food literacy
  - Importance of themes for all school year groups in proposed food and nutrition curriculum support materials
  - Suitability of competencies defined under each developmental phase

Level of importance of this theme for all year groups. Percentage of participants.



THE FRAMEWORK

Content	Phase 1: K-2	Phase 2: Year 3-4	Phase 3: Year 5-6	Phase 4: Year 7-8	Phase 5: Year 9-10
Food and drink SOURCE This theme encompasses promoting skills, knowledge and understanding of concepts relating to the nature of food, its production and availability.	1. Healthy food comes from plants and animals 2. We can grow and produce our own healthy food	1. Our environment is important to our healthy food supply	1. Technology can have both healthy and unhealthy effects on our healthy food supply	1. Personal and collaborative action can change availability of healthy foods	1. Political, economic and social considerations influence healthy food production, supply and demand in Australia and elsewhere.
Food and drink choice This theme encompasses promoting skills, knowledge and understanding of concepts relating to food selection and influences; finding and interpreting nutrition information including food labels; shopping and budgeting.	1. There are many different types of healthy food and drinks to choose from. 2. We need different amounts of different healthy foods.	1. Different people may choose different foods and drinks. 2. We need to make healthy food and drink choices to grow (ie. healthy and active each day)	1. Many factors can influence our food choices. 2. We can make healthy food and drink choices that meet nutritional, cultural, social and budget needs	1. We can read and interpret food labels, find reliable nutrition information and budget our money to plan and select healthy, affordable food and drinks	1. It is important to critically analyse nutrition and health information and influential factors to make well informed food and drink choices.
Food and drink experience This theme encompasses promoting skills, knowledge and understanding of concepts relating to menu planning, food preparation and cooking, food storage and food safety.	1. We like foods and drinks for different reasons. 2. We need to be creative and seek other healthy and preparing food.	1. We can plan and safely prepare healthy food that looks and tastes good.	1. We can plan and prepare a variety of nutritious and tasty snacks, meals and drinks in a safe, hygienic way. 2. We can reduce food and environmental waste.	1. We can plan and prepare safe, healthy food and drinks to reflect authorities' dietary requirements, cultural and societal influences.	1. We can prepare a variety of nutritious snacks, meals and drinks that meet personal, social, cultural, economic and environmental needs.
Food, drink and health This theme encompasses promoting skills, knowledge and understanding of how food and nutrition impacts health and wellbeing.	1. We need a variety and balance of healthy foods and water to grow, be healthy and active each day.	1. We need healthy foods, snacks and drinks to grow, be healthy and active each day. 2. We can eat more healthy food if we are active.	1. Foods and drinks have variable nutritional and energy value. 2. Our nutritional needs change through our lives, affecting the types and amounts of healthy food and drinks we need to be healthy, active lives.	1. The type and amount of food and drinks we eat affects our short and long term health. 2. People have different nutritional and food needs as they grow and develop.	1. Nutritional quality and energy from different types and amounts of food and drink can affect our overall health and wellbeing. 2. We can make well-informed decisions to manage our health and lifestyle to improve our health and wellbeing.

- The scope encompasses promoting skills, knowledge and understanding of concepts related to four food and drink themes: Source, Choice Experience and Health
- The sequence provides key food and nutrition messages associated with the scope themes, relevant to five developmental phases.
- Aligns with content specified in the Australian Curriculum, specifically Health and Physical Education and Technologies.

CONCLUSIONS

- The Food and Nutrition Curriculum Framework identifies core food and nutrition content needed to build nutrition literacy as children move through schooling
- It can be used to scaffold food and nutrition teaching content to address the Australian Curriculum. See www.refreshedschools.health.wa.gov.au for more information and practical examples

Department of Health | Refresh.ED | child health | ECU

What about using authentic spoken word assessment?

Kendall Jarrett
University of Canterbury / Deakin University

‘What about using authentic spoken word assessment?’

Kendall Jarrett, Deakin University

Introduction

Historically, written word assessments in the form of essays, question-response examinations and observation reports have been used to assess pre-service physical educators’ pedagogical content knowledge (PCK) (Capel, Hayes, Katene & Velija, 2009). And although such a diet of assessment modes may offer a justifiable and valid means to indicate understanding, their authenticity as modes of assessment that resemble the context in which learning occurred can be questioned. This poster outlines key considerations associated with designing and utilising the authentic spoken word assessment mode known as PASS – Practically Assessed Structured Scenarios – and presents students’ and teacher reflections captured as part of a small-scale scholarship of teaching research study.

Background

Spoken word assessments in the form of group presentations and vivas have often provided pre-service physical educators with opportunities to showcase their PCK. How representative they are of the context in which learning takes place, however, is debateable. And with the fidelity of instructional pedagogies used by physical educators a growing concern in the literature, key consideration should be given to the authenticity of assessment modes being used to develop and determine pre-service physical educators’ PCK.

PASS - Practically Assessed Structured Scenarios

Participants

Cohort 1 -Yr 2 pre-service PE teachers studying 2nd yr Instructional Pedagogies unit.

Cohort 2 - Yr 3 pre-service PE teachers studying 3rd yr Sport & Exercise Pedagogies unit.

Procedure

Data were gathered from written (individual) and recorded verbal (group) feed back offered as part of formal end-of-unit evaluations

PASS

PASS is a series of pre-prepared assessment scenarios that students move through (either individually or in a group) designed to test understanding and application of instructional pedagogies (Brown & Race, 2012). Adapted from Objective Structured Clinical Examinations used in medical and veterinary education, a typical PASS assessment may include the following spoken word elements:

Group discussion

Range and depth of individual responses/ group discussion offered in response to pedagogical or content focused questions

Group action

Group responses to a range of verbal, written or visual cues designed to assess PCK

Individual observation task

Individual verbal response outlining key observations made of still or video images relating to specific teaching and learning scenarios

Results

‘I liked the PASS but some of our group members didn’t add much. We were carrying some of them I think.’
Craig, Yr 2

‘I felt I did better than I thought I would do… because you [the teacher] were right there to help.’
India, Yr 2

‘The PASS focuses on what I have actually come here to learn about.’
Sarah, Yr 3

‘Because we used it [PASS] last year I was much better prepared.’
Tom, Yr 3

‘A meaningful and effective Assessment of PCK.’
Teacher

Conclusion

Designing: Logistical considerations associated with student movement between questions posed a challenge. The need for two staff to conduct the assessment was determined. Real-time assessment moderation was completed as a result.

Implementing: The introduction of PASS as a new mode of assessment to Yr 2 students was met with initial trepidation - even though Practice PASS sessions were offered prior to the end-of-unit summative PASS. Yr 3 students did not share the same concerns with blanket positive responses offered with regards to their PASS experience. From a staff perspective the ability to use cues, hints and scaffolding (Butler, 1997) to seek clarification when assessing students’ PCK proved advantageous to both students (e.g. to assist with question understanding) and assessing staff (e.g. completion of assessment checklists).

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Investigating the application of Gee's (2007) good digital game design features into invasion games coaching pedagogy

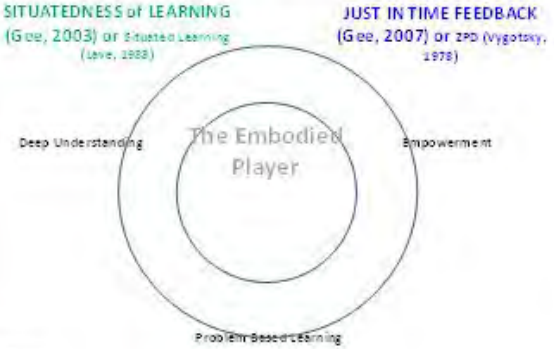
Amy Price and Shane Pill
St. Mary's University / Flinders University

"How do you get someone to learn something long,, hard and complex and yet enjoy it?" (Gee, 2003, pg. 2)

This action research (AR) study investigates the application of Gee's (2007) good digital game design features into invasion games pedagogy used with a girls Under 9 soccer team

An investigation into applying Gee's (2007) good game design features from digital game design to invasion games pedagogy (conducted in the UK)

Vision for Learning using Gee's Design Features in Invasion Games Practice



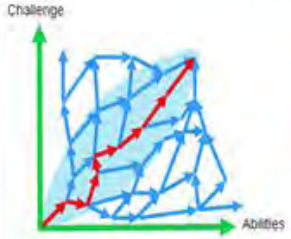
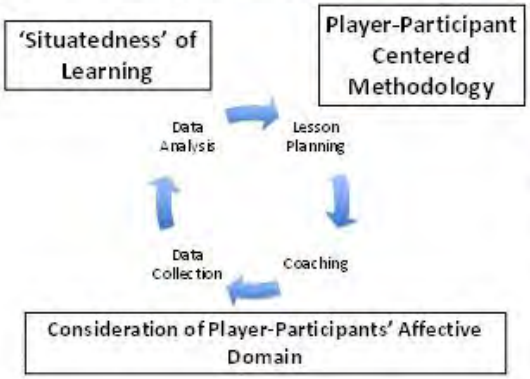


Figure 7 Active Flow Adjustment through Choices

Motivation to learn something long, hard and complex (Gee, 2003)

Core Values of this Action Research Study



Methodology Timeline

Amy Price
St Mary's University, London, England
@SMUC_PSE_AP

Shane Pill
Flinders University, Adelaide, South Australia
@pilly66

Trends in Literature

The research found that conditioning to learn through game-centred design features explained by Gee (2007) may be context specific. It appeared that a game-centred approach to sport skill learning was unfamiliar with players. Players were more familiar with, and conditioned to, a directive "drill-based" pedagogical focus and comfortable with the expectations of this form of sport learning environment.

The achievement of a flow state with players through the coach use of game-centred design features was therefore somewhat problematic.

Implications on Coaching Practice

Reference List

Recommendations for Future Research

Recommended Reading

29th ACHPER International Conference

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Prince Alfred College
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ACHPER® Australia
South Australia Branch Inc.

Conference Secretariat:

ACHPER (SA) Office:
105 King William St , Kent Town,
South Australia

Ph: 08 8363 5700
Fax: 08 8362 9800
Email: info@achpersa.com.au
Web: www.achper2015.com

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