

## **European Physical Education review**

### **Participants' physical activity levels and evaluations of a school sport programme in Papua New Guinea**

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**Abstract**

In its contemporary form, sport for development has been positioned as an important part of strategic policy for a variety of governmental and sporting organisations. One area that has been targeted by governments and a variety of sporting partners has been the impact of sport on non-communicable diseases (NCDs, sometimes colloquially referred to as 'lifestyle diseases' such as obesity). However, relatively little evidence exists for the impact of sport programs on the reduction of NCDs and future health burden. This study sought to examine the physical activity levels of school-aged children in Papua New Guinea (PNG) during their participation in a targeted sport program operating during school hours. Data collection methods employed were physical activity recall; pedometer counts; as well as perceptions, intentions, and knowledge of participants. Children in this study were found to have lower physical activity levels during the after school period than has been reported in the literature for children in other countries. Overall children were active during the sport program, completing 1179 steps on average (which constitutes 10% of the suggested daily values for children of a similar age). No profound differences were observed in either the qualitative or quantitative data across different schools, regions, or genders. The responses from children regarding the sport program were notably positive.

**Keywords**

Sport for development, non-communicable disease, step count, cricket, gender

## **Introduction**

Sport has been recognised as playing a potentially strong role in nurturing individuals and groups beyond physical development. In 2003 the United Nations (UN) passed a motion entitled ‘Sport as a means to promote education, health, development, and peace.’ In this paper, we adopt the shorter term ‘sport for development’ (SfD). This vernacular is now widely recognised as an overarching term that captures the use of sport and physical activity to advance sport and general social development (especially in disadvantaged communities), and, although there are other terms that are often used interchangeably with SfD such as ‘sport for development and peace’, we opt for the shorter term here because it reflects the broad-based goals of the context under investigation in this project. Moreover, this term resonates with the literature related to the UN Millennium Development Goals as well as the more recent and subsequently adopted Sustainable Development Goals (United Nations General Assembly, A/RES/70/1, 2015). Specifically, in this project that involved a sport program offered by a sport governing body, provided to school-aged children during school hours, there are direct links with Sustainable Development Goals (e.g. Quality Education, Gender Equality, Partnership for the Goals) that are associated with, among other things, healthy lifestyles, inclusive and equitable education, and cooperation across sectors.

We acknowledge that the idea of using sport for reasons beyond competition is not new. Nevertheless, the UN motion and subsequent developments have been further recognition that sport can be considered to be part of the broad humanitarian and developmental efforts of educational, governmental, non-governmental, and in some

cases private organisations. International forums such as ‘The International Platform on Sport and Development’ and international working groups such as ‘Sport for Development and Peace’ are contemporary attempts to continue to progress the field with respect to practitioners, policy makers, international aid agencies, and researchers.

Challenges such as those targeted in SfD programs exist the world over; however, they tend to be particularly visible in low-to-middle income countries. It is in these contexts that the SfD movement finds its greatest prominence in seeking to use sport as a vehicle for addressing a seemingly endless array of outcomes including those related to education, health, and conflict.

There has been commensurate researcher and practitioner interest in the links between sport and recreation programs in these contexts and various health and social outcomes that have drawn upon the well-established body of literature on the use of sport to address social issues in mainstream society (e.g. Kidd, 2008; Whitley et al., 2014). Although the recognition of the contribution that sport-based approaches can make to development objectives has grown markedly over the past 10 years (Dudfield, 2014), a number of challenges and issues have hindered the progress of SfD activities. Chief amongst these hindrances have been insufficient support mechanisms, delivery instruments, and resourcing in many countries to drive initiatives to their fullest extent. Moreover, a key issue is that the relative success of programs has traditionally been difficult to ascertain due to truncated delivery timeframes, remoteness of intervention, and limited interest in and/or funding for evaluations (Rossi, 2015; Schulenkorf et al.,

2014; Whitley et al., 2014). So although there is great support and enthusiasm for such efforts, fiscal and organisational realities have resulted in numerous struggles to initiate and sustain programs. In seeking to rectify this situation, and considering the growing prominence of SfD, there have been increasing efforts made to scrutinise the potential, as well as the limitations, of sport in achieving a range of personal, community, national, and international development objectives (Burnett, 2015; Coalter, 2007; Edwards, 2015; Hanrahan et al., 2012; Hartmann and Kwauk, 2011; Schulenkorf et al., 2016).

In the academic world, it has been noted that although the activism of the SfD movement is laudable, it remains under-theorised and, in spite of the enthusiasm for the movement, there are at best only modest data related to the success or otherwise of projects regardless of whether they are large scale, top-down, or locally-driven, bottom-up projects (Kay, 2009; Kidd, 2008). Moreover, the theoretical constructs are often poorly defined (Coalter, 2007) and there is sometimes significant mismatch between organisational, participant, and deliverer goals. Notwithstanding recent studies that have sought to redress a number of issues (e.g. Carney and Chawansky, 2016; Darnell et al., 2016; Hayhurst et al., 2016; Sherry and Schulenkorf, 2016; Spaaij et al., 2016; Welty Peachey & Burton, 2016), this situation has tended to lead to low impact, contradictory, or non-existent evidence regarding program appropriateness, success, and sustainability. Coalter (2010) has been critical in this regard suggesting that programs of SfD often conflate micro-level individual gains with community wide development and engage in narrowly framed interventions yet claim to be addressing what Coalter (2010) referred

to as ‘broad gauge problems’ (p. 308) that tend to lack clear targets for change. As a counterpoint, however, Nicholls et al. (2010) demonstrated that ample data have emerged from well-structured programs that show demonstrable outcomes at the individual and community levels. That such outcomes gain little traction, Nicholls et al. (2010) argued, is a consequence of the silencing of some research voices that tend to be both young and of colour. Of significance for forums such as this journal, the prevailing conditions have contributed to a high degree of contestability regarding the academic terrain of SfD (Hartmann and Kwauk, 2011; Schulenkorf et al., 2014). What this tends to suggest is that there is a number of inconsistencies regarding the research related to practitioners in SfD and that the framing and evaluation of programs is worthy of careful, further, and more inclusive investigation. As Darnell (2007) pointed out, what tends to characterise SfD projects is founded upon a ‘white’ authority imbued with a sense of power and benevolence.

Accordingly, we consider it important to adopt a cautious position regarding the potential of SfD programs. Specifically, we seek to adopt a modest and narrow position with respect to the program parameters and this paper. Of interest in this study is what engagement in a school-based cricket program means for the physical activity levels of Papua New Guinean young people and what (if any) impact the cricket program has on the lives of those who participate. What we do know is that physical activity and sport are embedded in a complex web of meanings in relation to families and the broader community. As a result, this study considers the experiences of Papua New Guinean young people while accepting the position that physical activity, leisure, and/or sport

cannot be separated from spiritual, cultural, social, or physical connections (Rynne and Rossi, 2012).

#### *Pacific Sports Partnership background*

The initial phase (Phase 1) of the Pacific Sports Partnership (PSP) was delivered through affiliations between the Australian Sports Commission (Australian Sports Outreach Program), the Australian Government's overseas aid program (AusAID), Australian and international sport organisations, and counterpart regional and national sport federations in the Pacific. The first phase of the PSP was launched in 2009 to strengthen sporting cooperation with the Pacific and contribute to the priorities of Australia's aid program in the region. The program involved a focus on supporting grassroots sport and capability building of national sporting federations, while contributing to the identification and progress of positive social development outcomes. Five sporting bodies were supported to deliver activities during the first phase of the PSP: cricket, football, netball, rugby league, and rugby union. Over time, the changing priorities of the Australian government meant that the focus of the program morphed somewhat to have a greater emphasis on the delivery of developmental outcomes through the provision of sport (via the various international partners; Synergistiq, 2015). These shifts framed the development of an expanded Phase 2 of the PSP (11 countries; 2013-2017). The key objectives of the PSP's second phase relate to the 'support of activities to address primary risk factors associated with non-communicable diseases, particularly physical inactivity, and address inequalities experienced by women, girls and people living with disability.' (Australian Government, 2015b).

This research project focused on the International Cricket Council East Asia Pacific's (ICC EAP) Phase 1 program in Papua New Guinea (PNG) – the Bank of the South Pacific School Kriket Program (hereafter referred to as Kriket or the Kriket program). Notably, the terms of the evaluation were framed in relation to the shifts in PSP foci, and were primarily related to levels of physical activity and the experiences of Papua New Guinean youth in these programs.

At this point it is worth offering some further detail regarding the key aspects concerning SfD efforts in PNG. Consisting of a mainland and six hundred or so islands, PNG has a population of around 7.5 million, speaking more than 800 languages (although English is the official language and Tok Pisin is the most spoken language; Australian Government, 2015a; Papua New Guinea Department of Education, 2004; United Nations Development Programme, 2015). Around 15% of Papua New Guineans reside in urban centres, with the vast majority of the population living in traditional rural communities (Australian Government, 2015; Papua New Guinea Department of Education, 2004; United Nations Development Programme, 2015). Although PNG is a vibrant and diverse nation with respect to its geography and people, significant issues exist. For example, violence and sexual assault are considered to be endemic and there are high levels of disability (approximately 12% of the population) (Australian Government, 2015). Additionally, there are significant challenges regarding children and youth in PNG (Sherry and Schulenkorf, 2016). For example, large numbers of school-aged children do not attend school (i.e. approximately one in five children are not enrolled and about half of all school-aged



children do not attend) (Australian Government, 2015; UNICEF, n.d.). Access to and involvement in school is worse for girls, those from rural areas, and those with disabilities. These issues are considered to be of great significance because approximately 50% of the population is under the age of 20 years (Australian Government, 2015a; Papua New Guinea Department of Education, 2004).

At a systemic level, a national education system has been in place since the early 1970s (albeit decentralised and related to provincial governments since the late 1970s). Despite the aforementioned issues regarding attendance, schools remain a key site for initiatives such as Kriket because of the projected growth in school-aged and economically active populations (i.e. given the young population profile, much educational, social, and economic promise is attached to youth in PNG; Papua New Guinea Department of Education, 2004). A healthy and active youth population is a strategic priority for PNG and is also in keeping with their commitments regarding the United Nations' development goals (United Nations Development Programme, 2015). Keeping in mind the complicated challenges associated with undertaking and evaluating SfD projects in such contexts (Sherry and Schulenkorf, 2016), we offer some further detail regarding the program under investigation.

At the time of the evaluation, there were more than 150,000 participants in the Bank of South Pacific (major funding partner) School Kriket Program (the context of the ICC EAP's PSP efforts). The program had been conducted across 10 provinces in PNG. Cricket PNG's office is based in Port Moresby, but they have a regional cricket manager in each of

the 10 provinces. The regional cricket managers were responsible for the delivery of the program, along with the school development officers (employees of Cricket PNG), school teachers, and volunteers (sometimes members of the national team). The program typically ran during school time and generally for an 8 week period. The focus of the program was on the development of fundamental skills and aspects of game play in an active context (i.e. predominantly games). At the time there were no formal partnerships with the Department of Education and schools were approached on an individual basis regarding the running of programs.

### *Physical activity and health*

Adequate participation in physical activity during childhood and adolescence is considered essential for good health and sound growth and development. Among young people, the available evidence indicates that physical activity is associated with weight loss; reduced blood cholesterol; and increases in fitness, muscular strength, and bone density (Janssen and LeBlanc, 2010). In addition, physical activity is associated with several psychological health benefits, including reductions in anxiety and depression, and improvements in cognitive function and academic performance (Davis et al., 2011). In children and adolescents physical activity has also been shown to be related to self-esteem (Biddle and Asare, 2011), and is associated with increased self-worth and self-concept (Liu et al., 2015). Given the importance of physical activity, considerable efforts have been invested in developing guidelines for physical activity worldwide. Most high-income countries have created guidelines stating that children and youth should accumulate on average at least 60 minutes of physical activity per day. These

recommendations are consistent across the USA, Canada, the UK, and Australia (Janssen, 2007; Strong et al., 2005).

For young people, participation in sport has the potential to be a major source of health-enhancing physical activity. Hence, the prevalence of sports participation among young people has public health implications (Troost, 2012). Sport has been shown to have the potential to protect participants against negative influences that can lead to delinquency and drug abuse as well as promote health enhancing behaviours, including proper nutrition and avoidance of cigarette smoking (Pate et al., 2000). The primary purpose of this study was to determine the level of activity of children participating in a school cricket program offered through the Pacific Sports Partnership in PNG. In addition, the study was designed to obtain students' insights about the Kriket program.

## **Method**

This research employed an exploratory, cross-sectional, case-study design to examine the performance of PSP cricket program in PNG in the following areas:

- a. The level of physical activity of children participating in Kriket.
- b. The experiences of students in Kriket.

Data were sourced from a variety of quantitative (questionnaires, pedometers) and qualitative (written reflections) methods.

*Ethical clearance and research permits*

The Behavioural and Social Sciences Ethical Review Committee of The University of Queensland deemed that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans (approval #2013001365). The appropriate 'in-country' research permit through the National Research Institute and visas for PNG were also obtained prior to data collection.

### *Participants*

Data were collected from 696 participants across eight schools in PNG during the first term of the 2014 school year. Students were free to decline participation in the data collection. There were two active schools (defined as schools that had participated in the Kriket program in term 4 of the previous year and were undertaking the Kriket program in the first term of the current year) and two dormant schools (schools that had participated in the Kriket program in the past, but had not participated in term 4 of the previous year and were not participating in the term when the research was conducted) in each of two separate regions (National Capital District and Western Highlands). The purpose of involving dormant schools in the research design was to attempt to permit some comparison regarding whether current involvement in the Kriket program encouraged or discouraged participation in physical activity outside of school hours (i.e. comparing outside of school hours physical activity of students who were currently in active programs and those who were not). The mean age of participants was 13.9 years ( $SD \pm 2.02$ ). There were 275 girls, 358 boys, with the remaining 63 participants not specifying their gender.

### *Measures*

A mixed method design was adopted for this study, making use of both quantitative and qualitative approaches to explore the key research questions. In keeping with the suggestions of a variety of scholars (e.g. Loy, 2015; Sparkes, 2015; Sparkes and Smith, 2014; Tuhiwai Smith, 2012), the aim of employing such a design was to address the research questions more comprehensively than solely quantitative or qualitative methods may have achieved on their own. This approach has been said to be particularly important when investigations are broad, complex, and multifaceted, as well as in exploratory investigations (Tariq and Woodman, 2013). Mixed method approaches have been accused of being incompatible because of paradigmatic clashes making true integration and appropriate presentation of findings difficult and overly time consuming, requiring specific skills and expertise (Sparkes and Smith, 2014; Tariq and Woodman, 2013). We adopt the view offered by Sparkes (2015) that there is potentially no debate to have. The accompanying argument is that at the paradigmatic level, the justification for any given approach is not bound by ‘detailed, rigid boundaries for the practical application of use of techniques’ (p.50). In this current study, the paradigmatic (i.e. set of basic beliefs and worldview) and methodological (i.e. general approach to studying the issue at hand) positions remain consistent throughout, therefore there is no issue with adopting a variety of methods (techniques or tools for data generation and analysis) (Sparkes, 2015). Moreover, the advocacy for moving beyond what were termed the ‘Paradigm Wars’ (Gage, 1989; and more recently Jones and Kennedy, 2011) is well developed (Sparkes, 2015). As a consequence we considered there to be no

epistemological conflict in using methods from different paradigms. Therefore, below is an account of the methods used to generate data related to the two main areas of inquiry.

*Previous Day Physical Activity Recall (PDPAR).* The PDPAR, developed by Weston, Petosa, and Pate (1997) allowed for the assessment of self-reported physical activity participation from after school until bedtime. For each 30-minute block, participants were instructed to write in the predominant activity (using a compendium of physical activities that had been modified to be culturally relevant for PNG) in which they had participated, and to rate the intensity level (light, medium, hard, or very hard; each intensity had simple descriptions and pictures to describe them). Through these modifications, the reliance on basic English language reading and writing skills was reduced. Additionally, during completion of the PDPAR, children were helped by a research assistant, Cricket PNG staff, and school teachers; all of whom were highly skilled in both English and Tok Pisin. For analysis, metabolic equivalent of task (MET) values were assigned to each 30-min block based on the type of activity and the intensity level checked. Weston et al. (1997) supported the validity of the PDPAR as a previous day recall of physical activity. Anderson et al. (2005) also found the PDPAR to be a valid physical activity diary in adolescents.

*Physical activity participation.* Participants in the two active schools wore pedometers for the duration of one cricket session to determine the levels of physical activity undertaken during the cricket program as measured by the number of steps taken during the session. Although other methods may have greater validity for measuring physical

activity, the use of pedometers provides an opportunity for measurement when more valid measures such as accelerometers are not feasible (Tudor-Locke et al., 2002). The use of accelerometers was not feasible in this study due to financial and logistical limits.

*Short writing task.* As suggested by teachers at one of the schools, children were asked to respond in class to assignment questions about what they liked about the Kriket program, what they did not like about the Kriket program, what three words they would associate with the program, whether they would like to continue playing cricket, and what they knew about cricket. The classroom teachers predominantly felt the topic provided good, structured writing practice for their students. This qualitative information was used to obtain some insight into the attitudes of the students towards the program.

### *Procedure*

An orientation visit took place in PNG approximately four months before data collection. A researcher, a representative of Cricket PNG, and a representative of the International Cricket Council East Asia Pacific visited six schools in Port Moresby. This orientation visit resulted in the revision of the research instruments (most notably in the activities listed in the PDPAR) to make them culturally relevant, the development of a research ‘circular’ for distribution amongst Cricket PNG and relevant school personnel to explain the research project, the agreement of when data would be collected that allowed for regional cricket commitments and the timing of school terms), and the decision to include the qualitative writing task (suggested by teachers at one of the

schools). To keep a balance between active and dormant schools (and to stay within the research budget), only four of the six schools initially visited in Port Moresby were included in the actual study.

During data collection, students completed the PDPAR and the short writing task in their classrooms. As noted earlier, the research assistant (with native language skills) and teachers at the schools assisted in providing clarification and support for students to complete the tasks. Additionally, those students in the four active schools wore the pedometers during one cricket session. Pedometers were assigned to consenting students at random with only a set number available during each class, meaning that regardless of class size, no more than 26 pedometers were used in a single class. The minimum number used in a class was 24.

### *Analyses*

Independent t-tests were performed on the PDPAR and pedometer measures to determine whether significant differences existed between boys and girls. One-way ANOVAs were used to determine whether differences in these two outcome measures were evident across the eight participating schools and across Western Highlands compared to National Capital District schools, and dormant schools compared to active schools. Pearson's correlations were performed to determine whether a significant relationship existed between steps during the cricket session and leisure time physical activity in after school hours. Qualitative data were analysed using a general inductive



approach as outlined by Thomas (2006) to identify common themes across participants' assignment responses.

## **Results**

### *Descriptive data*

There were small differences in the mean age across different schools, but no significant differences in age across the two regions or across active and dormant schools.

### *After school physical activity measures (PDPAR)*

The mean energy expenditure by the students after school was 1.28 METS, with an average of 85 minutes spent in moderate and vigorous physical activity. In terms of vigorous physical activity, an independent t-test indicated that boys engaged in significantly more vigorous physical activity ( $M = 43 \text{ minutes} \pm 44.2SD$ ) after school than did girls ( $M = 22 \text{ minutes} \pm 31.5SD$ ). There were no significant difference in METS between students in active schools ( $M = 2.4 \pm 0.77SD$ ) and students in dormant schools ( $M = 2.4 \pm 0.73SD$ ).

### *Kriket program physical activity (pedometer values)*

Steps were used as an indication of the amount of physical activity that was performed during the Kriket program. The children engaging in the Kriket program took an average of 1179 steps during the 30-45 minute Kriket session. This number varied considerably across children, ranging from a minimum of 13 steps (for a boy who declined to participate in the program) up to a maximum of 2875 steps. Boys ( $M = 1196$

$\pm 575$ SD) took significantly more steps than did girls ( $M = 1155 \pm 475$ ). A mean split was used to divide the participants into those who were more active after school (defined as those who did more than 150 minutes of combined moderate and vigorous physical activity;  $n = 110$ ) compared to those who were less active after school (did less than 150 minutes;  $n = 521$ ). There was no significant difference between these two groups on the number of steps taken during the Kriket session. A correlation analysis showed a small but significant relationship between time spent in combined moderate and vigorous physical activity after school and steps taken during the program ( $r = 0.18$ )

There were no significant differences in the number of steps taken during a Kriket session in schools in Port Moresby compared to the Western Highlands (mean steps were 1127 and 1264 respectively). There were, however, significant differences between schools. Class sizes were larger in the two schools with the highest step counts compared to the two schools with the lowest step counts. Nevertheless, a Spearman's correlation between the number of steps and class size based on the number of students who consented to participate was not significant.

#### *Qualitative data*

The qualitative results are considered with respect to negative aspects, intention to continue, knowledge of the sport, and positive aspects. These results are presented in the same order in which students were asked about their involvement in the program. Within the manuscript quotes are cited verbatim, with no corrections to spelling or grammar.

*Negative aspects.* There were three main themes related to the negative aspects of participation in cricket (Kriket): (a) The effect on schoolwork; (b) Learning opportunities (i.e. instruction, practice conditions, and lack of knowledge of the game); and (c) Exclusion.

Statements such as, ‘I don’t like Kriket because sometimes when I’m really excited about the game I forget about school work’ and ‘I like playing cricket but it will destroyed my school learning’ indicate that some students perceived participating in cricket might have a negative effect on their schoolwork and study. Additional responses, however, suggest the possibility that these comments reflect the voices of parents. Within the assignment responses the following statements were also present: ‘Sometime parents disagree in school programs’; ‘Parents no agree in cricket program’; and, ‘No because my family don’t want me to join any games.’

Other negative comments related to learning opportunities within the Kriket program. Multiple comments were made about the amount of time the instructors spent talking (e.g. ‘It seems there were lengthy instructional periods,’ ‘They take a lot of time by giving instructions,’ ‘Dragging and kill times for other person to give his or her speech’ and, ‘The instructor talks too much’). In some schools, there were also comments made about the number of participants and the amount of space available. For example, one student wrote, ‘There are too many kids playing on the cricket field and not enough space’ and another stated, ‘I don’t play because there are too many kids.’ Some students

also mentioned that their knowledge of cricket was limited. Examples of this issue include 'I can play but I don't know about the Kriket program, I can play but I don't know the rules'; 'I don't like cricket because I do not know how to throw the ball'; and, 'I know little about cricket.'

A third theme relating to the negative aspects of the program concerned some exclusionary practices. Examples of statements on this topic include, 'I don't like school Kriket because they pick the same students to play,' 'They choose only some particular students and not others who are interested,' 'Both of us like to play cricket but the other boys don't gives us chances to play,' and 'Not many girl teams playing.'

*Intention to keep playing.* Despite some of the negative comments outlined above, there seemed to be a strong intent by the students to keep playing cricket into the future, with most offering reasons for why they might like to continue. In this regard, the overall sentiment was captured in the following response: 'Yes [I would like to keep playing cricket] because: I enjoy play cricket. I learn new things about cricket, I meet a new people in cricket, I learn new skills, I love cricket because of the way the people interact with each other.' Understandably, most of the reasons students cited for wanting to continue related to the positive aspects such as fun, connections with friends, physical fitness, and potential fame (as are discussed further below). Of the smaller number of students who did not believe they would play cricket in the future, the reasons related to a lack of skills or understanding (e.g. 'No. Because I don't know how to play and I don't like playing cricket'), a lack of family support (e.g. 'No because my family don't

want me to join any games’), and a preference for other sport activities (e.g. ‘No, because that’s not my favourite game’).

*Knowledge of the sport.* Data were also collected about students’ levels of knowledge regarding cricket. Specifically, they were asked whether they knew about cricket prior to being involved in the Kriket program. The majority of students indicated that they had some awareness and interest in the game. For example, students said: ‘Yes, we did know about cricket. Cricket is a fun sport and contains lots of skills’ and ‘Yes, we knew cricket before the school kriket program and we think it is a very good sport.’ Students in some schools reported that this interest and knowledge had been furthered through their involvement and that it was greater than in other sports, for example: ‘I think that cricket is very interesting than other sports.’

*Positive aspects.* In spite of the negative aspects identified, the majority of children regarded the Kriket program to be positive, with almost all respondents noting aspects that they enjoyed. The experiences on the whole were perceived to be enjoyable with students keen to be involved. Some example statements include ‘I like it because it’s fun and easy to play and you get to compete’, ‘We want to be part of the school kriket program...we want to be part of the team too,’ and ‘We enjoy playing kriket and it’s a very nice game.’ Although the primary reason for wanting to be involved was related to the program being ‘fun’ and involving their friends, students perceived a variety of other potential benefits from participation. These benefits were predominantly related to a perception that the program was good for fitness and a path to future success.

Regarding the first aspect, students made comments such as ‘I like it because we will become physical fit’ and ‘It makes people fit and healthy.’ Alternatively, some students felt it was a way to showcase their abilities and set them on a road to stardom: ‘I like it because it may show some of my talents out,’ ‘we want to become future kriket stars,’ and ‘I could get some benefit for my future ... to travel around the world.’

## **Discussion**

### *Physical activity levels*

*Level of activity in the program.* The average of 1179 steps during a 30-45 minute Kriket session is a positive result and suggests that the children, on average, are completing about 10% of their daily recommended step counts during this relatively short period of time. This level of physical activity was in spite of the previously mentioned negative aspects noted by participants related to too much time spent in instruction, lack of space, time spent waiting for a turn, and over-dominance of some participants (boys).

There was no difference in steps taken during the Kriket program between regions. Although there was individual variation in schools’ activity levels, there was no difference between the Western Highlands and National Capital District schools. It appears as though Cricket PNG is consistent in the delivery of the Kriket program across regions, at least in terms of the opportunity for physical activity.

The results indicated that the differences in step counts found between schools may not be related to class/school size, but due to other external factors such as space available in the school yard. It is interesting to consider that how teachers engage with various sports may influence students' engagement with particular sports (and hence their physical activity levels during the Cricket program). This possibility is supported by the assignment responses whereby children in one school responded far more positively to questions related to their interest in cricket, compared to students in another school who were more likely to mention soccer, rugby league, and AFL as their preferred sports.

*Energy expenditure.* The mean energy expenditure of 1.28 METS is considerably lower than previous studies in other countries that have used the PDPAR with school aged children (Troost et al., 1999). The average amount of time spent engaged in moderate and vigorous physical activity after school was also less than reported by previous studies in children of a similar age (Troost et al., 1999). The instrument has not been previously validated with children from this world region, which may have influenced the results, but the results do suggest low levels of physical activity in this population.

*Levels of activity within and outside of the program.* A concern with in-school sport programs is that it may be only the 'highly active' children who engage with such programs and children who are less active outside school (and therefore potentially would get more out of the program) spend more time watching than participating (Tinning, 2010). The data do not indicate that children who are highly active after school are any more active during the program compared to children who are less active

after school. This finding suggests that participation opportunities have been equal for all children involved. The large range of steps taken during the program may explain some assignment responses where a small number of children felt they were not given the same opportunities to participate as other children.

The results showed no significant differences between active and dormant schools in mean energy expenditure or time spent in moderate/vigorous physical activity after school. However, there was a trend towards children doing more moderate physical activity after school when their school was currently involved in the Kriket program. This non-significant finding was not surprising, because although the dormant schools were not currently participating in the Kriket program, they had previously been involved with the program (i.e. all children has been involved in the program at some stage either currently or previously). This similarity between active and dormant schools was confirmed by the data from the assignment responses, which showed that children in both active and dormant schools responded to the question related to Kriket knowledge in a similar way. This result is not a negative result because it suggests that the impact of the Kriket program is potentially long lasting and the influence of the program is not limited to current engagement in the program. To answer the question related to the program's ability to increase physical activity participation outside of school hours, a better comparison would be between children who had never participated in the Kriket program with current and past participants, but because of the widespread coverage of the Kriket program in the two regions where this research took place, these data are not available.



*Gender and level of activity in the program.* Studies have consistently shown gender disparity in physical activity levels (Troost et al., 1999). Research has indicated that boys report significantly greater participation in moderate and vigorous physical activity compared to girls (Troost et al., 1996). Given the established difference, an important research question was whether this difference existed in this population during the after school period. Equally important was to determine whether any differences in participation (measured through the pedometer counts) existed between boys and girls during the Kriket program. Given the difference between boys and girls after school, programs that increase physical activity levels of girls are important, and to be effective, the Kriket program should address boys and girls equally.

Generally the results showed that the Kriket program appears to be successful in catering for boys and girls. Within the context of the program boys on average did only 41 more steps during the sessions than girls. Although this result is statistically significant, it is not *clinically* significant across 30-45 minutes. However, consistent with previous research, it emerged that boys did considerably more vigorous physical activity after school than girls. So whilst the program might deliver something approaching parity of opportunity for boys and girls in terms of engagement with physical activity, beyond school the story is different. This result mirrors other SfD findings that demonstrate that women and girls tend to be marginalised in terms of opportunities for sport and physical activity as a consequence of their identified gender or their biological sex, or the capacity to identify as anything other than subservient to

the agenda of males (Carney and Chawansky, 2016; Forde, 2009; Jeanes, 2013). This issue presents a challenge for those who sponsor and run SfD projects in low-income countries and it begs the question as to whether SfD intervention programs can be run in such countries without slipping into a colonial discourse of benevolence (see Darnell, 2007 for more on this concern). In the context of this study, there are ramifications related to the distribution of NCD across the population, the limits of health promotion activities that potentially favour (or at least do not exclude) women and girls, and the potential impact on women's sport. Whilst the program delivered outcomes in terms of number of steps that were not different *clinically*, the program seems to have little impact on sports engagement outside of school.

#### *Students' perceptions of the program*

A variety of scholars have characterised the reasons that children typically engage in and continue to play sport (e.g. Bailey, 2006; Fraser-Thomas et al., 2008; Wall and Côté, 2007). Irrespective of the theoretical orientations (e.g. positive youth development, skill acquisition), most studies report all or combinations of the following reasons: have fun, develop fitness, make friends, learn new skills, enjoy competition, and be challenged. The findings of this research support this position. The aspect that was seemingly more present in this research than in previous studies was the belief that a number of children held regarding the potential for future stardom through sport. This result may have been related to the presence of players from the national team, employed by Cricket PNG to run the program.

Overall, the data suggest a general enthusiasm for the Kriket program related to the provision of a fun experience that facilitates making friends and the perception of the program being ‘healthy.’ Although cricket competes with other sports (volleyball, rugby league, and soccer mainly), there does seem to be good support for and interest in cricket. Generally it seems that most of the children knew about the program, with there being little difference between dormant and active schools in the responses to the writing task. However, despite the generally positive views, there were some aspects of programs and attitudes to sport more generally that may have influenced engagement or at least hampered optimisation of the programs.

*The effect on schoolwork and study.* The relationship between sports involvement and academic performance has always been contentious. There are studies that suggest involvement in physical activity enhances cognitive function (Davis et al., 2011). Other studies suggest this relationship between physical activity and academic performance is equivocal (Trost, 2007). There are two large studies, however, that have demonstrated that involvement in additional sport (and or other physical activity) in school time does not have a detrimental effect on academic performance. Details of these findings can be found in the ‘Trois Riveres’ study and the multiple follow-up studies undertaken in Quebec (Trudeau and Shepard, 2010) and the Hindmarsh study in South Australia (Tinning and Kirk, 1991).

The details of such studies may not be widely known outside of high income countries. The limited availability of these publications combined with cultural differences in the

values of sport (Jarvis and Thornton, 2012) may result in sport being perceived as an interruption to the more serious business of academic study. In the context of this study it is important to try at least to understand from where these ideas emanate. The assignment responses suggest that this disruption of academic work may be a concern being voiced by parents, which is then recycled and repeated by children.

Physical activity in the form of sport can be justified in terms of the health benefit (assuming the necessary thresholds of physical activity are reached). There is no research that indicates participation in sport is detrimental to academic performance. There are other attributes (positive youth development) that might also justify sport in the school day. Nevertheless, it does not appear as though these benefits are widely understood. Part of a developmental program for cricket might be an awareness program that spells out the unlikely detrimental impact, and that the best evidence suggests that there is benefit to executive function and even some potential benefit to academic performance, though the data on latter are regarded as equivocal (Donnelly et al., 2016).

*Learning opportunities.* The comments in this theme represented some of the constraints around the program. Schools in high income countries have long grappled with these concerns. The concern about lengthy skill descriptions and instructional periods is consistent with much of the literature on pedagogy (Darst et al., 2015). Siedentop (1991) identified teacher talk as one of the more time consuming aspects of physical education lessons (another is waiting for a turn – see later). Improving ‘time on

task' was a feature of physical education pedagogy studies in the 1980s (particularly at Ohio State University). There are models of pedagogy that seek to overcome the dominance of teacher talk that use more 'indirect methods' such as Teaching Games for Understanding (see Bunker and Thorpe, 1982) and more recent approaches such as non-linear pedagogical approaches to skill development (see Moy et al., 2014). The recommendation here is not so much that 'how' people teach and coach be changed altogether - rather our suggestion is that a broader range of pedagogical approaches be used. Any SfD program run in PNG might also benefit from an awareness campaign that provides support material for local teachers, coaches, and volunteers associated with alternative pedagogies.

There may be little that can be done about numbers and space, though better organisation and additional instructional staff might help. The large numbers within a limited space probably influence the amount of time spent waiting or standing around, which is acknowledged to lead to disinterest (Siedentop, 1991). Waiting for a turn has long been acknowledged as both time consuming and a factor that negatively affects learning. Further data here would be helpful, but space availability and learner to instructor ratios may be important concerns to address for future programs in these contexts. In the six schools visited during the orientation visit, class sizes ranged from 57 to 98, notably larger than the class sizes in the countries where much of the research on teaching and coaching generally takes place. It needs to be acknowledged that SfD initiatives in countries like PNG may be limited by the systemic factors associated with education.

The perception of long instructional periods combined with the poor participant number/space ratio may have contributed to the comments of some students regarding a perceived lack of knowledge about the game. It is difficult to say if this perception was because of limited opportunity caused by large numbers and small amounts of space, the instructional limitations, or whether there had been limited exposure to the game for some children. The apparent lack of knowledge about the game from some warrants further exploration.

*Exclusion.* Again, consistent with previous research on sport and physical education (e.g. Bailey, 2006; Collins, 2004), there appeared to be some exclusionary practices. It is difficult to determine whether these concerns are related to the factors already identified. Concerns around exclusionary practices can also be attended to through targeted professional development programs. The comments related to gender should be viewed in context because, although there was significant individual variation in physical activity performed during the program, there was an average of only 41 steps difference between boys and girls. Nevertheless, this issue is worth exploring further in the future, given the well-established gender inequalities identified in PNG. For example, PNG is ranked in the bottom 10 countries world-wide on the United Nations Development Programme's development index (United Nations Development Programme, 2015).

*Limitations*

Change can never be conclusively evaluated without longitudinal research that includes pre- and post-intervention data. All of our data are technically post (regardless of active vs dormant). Because of the widespread introduction of the Kriket program (i.e. to approximately 150,000 students in a country with a total population of roughly 7.3 million people), it was not feasible to access students who had not participated in the program.

In addition to using longitudinal methodology, future research should also consider measuring the health status of the participants. However, it is worth noting that issues of cultural sensitivity should be paramount when choosing any potential measures of health status (e.g. waist measurement, BMI, self-report diet and lifestyle inventories) and when engaging in the pragmatics of data collection. Any selections need to be assessed for degree of value (i.e. is it worthwhile) and cultural fit (i.e. is it appropriate).

## **Conclusions**

Associated with growing acknowledgement of the value and importance of SfD, there have been increasing efforts made to scrutinise the potential, as well as the limitations, of sport in achieving a range of personal, community, national, and international development objectives (Coalter, 2010; Hanrahan et al., 2012; Kay, 2009; Whitley et al., 2014). This research sought to specifically, and rather narrowly, evaluate a funded SfD program in terms of levels of physical activity and participants' perceptions.

In general the amount of physical activity undertaken in the program was high. Given that cricket has the propensity for long periods of low-level physical activity, this result is encouraging. Even so, some children complained that they had to wait a long time for a turn at batting, bowling, or even receiving the ball in the field during a modified game. Further modifications to the structural qualities of the program might therefore be warranted.

Students seemed to be aware that there can be a relationship between sport and health, which is a positive message that is clearly being disseminated. The program appears to be effective in promoting physical activity in the targeted children. A number of participants were able to articulate the benefits of the Kriket program relative to health and fitness and it is important that these relationships are fostered by the administering organisations.

The similar results for active and dormant schools were most likely because of students having participated in the Kriket program during the past 12 months. However, it would be valuable for future research in this context to have true control schools (with no involvement in the program) for comparison purposes to enable a more complete picture. The results do suggest that the effects of the Kriket program on the children persist beyond its direct implementation, although these effects do not appear to be evenly distributed. This challenge warrants full consideration in similar future programs. The PNG Kriket program appears to be able to deliver positive physical activity and indeed messages *about* physical activity, however, future programs may



benefit from further attention to program design to eliminate possible messages of exclusionary practices based on gender or indeed ability.

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## References

- Anderson CB, Hagstromer M and Agneta Y (2005) Validation of the PDPAR as an adolescent diary: Effect of accelerometer cut points. *Medicine and Science in Sports and Exercise* 37: 1224-1230.
- Australian Government (2015a) Development assistance in Papua New Guinea: Overview of Australia's aid program to Papua New Guinea. Department of Foreign Affairs and Trade. Available at: <http://dfat.gov.au/geo/papua-new-guinea/development-assistance/Pages/papua-new-guinea.aspx>
- Australian Government (2015b) Sport for development in the Pacific: Pacific Sports Partnerships (PSP) Program. Department of Foreign Affairs and Trade. Available at: <http://dfat.gov.au/people-to-people/sport/sport-for-development/pacific/Pages/sport-for-development-pacific.aspx>
- Bailey R (2006) Physical education and sport in schools: A review of benefits and outcomes. *Journal of School Health* 76(8): 397-401.
- Biddle SJH and Asare M (2011) Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine* 45(11): 886-895.
- Bunker D and Thorpe R (1982) A model for the teaching of games in secondary schools. *Bulletin of Physical Education* 18(1): 5-8.
- Burnett C (2015) Assessing the sociology of sport: On Sport for Development and Peace. *International Review for the Sociology of Sport* 50(4-5): 385-390.

- Carney A and Chawansky M (2016) Taking sex off the sidelines: Challenging heteronormativity within 'Sport in Development' research. *International Review for the Sociology of Sport* 51(3): 284-298.
- Coalter F (2007) Sports clubs, social capital and social regeneration: Ill-defined interventions with hard to follow outcomes? *Sport in Society: Cultures, Commerce, Media, Politics* 10(4): 537-559.
- Coalter F (2010) The politics of sport-for-development: Limited focus programmes and broad gauge problems. *International Review for the Sociology of Sport* 45(3): 295-314.
- Collins M (2004) Sport, physical activity and social exclusion. *Journal of Sports Sciences* 22(8): 727-740.
- Darnell SC, Whitley MA and Massey WV (2016) Changing methods and methods of change: reflections on qualitative research in Sport for Development and Peace. *Qualitative Research in Sport, Exercise and Health* 8(5): 571-577.
- Darst PW, Pangrazi R, Brusseau TA, and Erwin H (2015). *Dynamic Physical Education for Secondary School Students* (8<sup>th</sup> ed). Boston: Pearson.
- Davis CL, Tomporowski PD, McDowall JE, Austin B, Miller PH, Yanasak NE, Allison J and Naqlieri JA (2011) Exercise improves executive function and achievement and alters brain activation in overweight children. *Health Psychology* 30(1): 91-98.
- Donnelly JE, Hillman C, Castelli D, Etnier JL, Lee S, Tomporowski P, Lambourne K, and Szabo-Reed AN (2016) Physical activity, fitness, cognitive function, and

- academic achievement in children: A systematic review. *Medicine and Science in Sports and Exercise* 48(6): 1197-1222.
- Dudfield O (2014) Strengthening Sport for Development and Peace: National Policies and Strategies. London: Commonwealth Secretariat. Available at: <http://www.sportsthinktank.com/uploads/strengthening-sport-for-development-and-peace-national-policies-and-strategies-january-2014.pdf>
- Edwards MB (2015) The role of sport in community capacity building: An examination of sport for development research and practice. *Sport Management Review* 18(1): 6-19.
- Forde S (2009) *Playing by Their Rules: Coastal Teenage Girls in Kenya on Life, Love and Football*. Kilifi, Kenya: Moving the Goalposts.
- Fraser-Thomas J, Côté J and Deakin J (2008) Understanding dropout and prolonged engagement in adolescent competitive sport. *Psychology of Sport and Exercise* 9: 645-662.
- Gage NL (1989) The paradigm wars and their aftermath; A “historical” sketch of research on teaching since 1989. *Educational Researcher* 18(7): 4-10.
- Hanrahan SJ, Nelson A and Rynne SB (2012) *Review of Junior Sport Framework Briefing Paper: Sport for Development and Community Building*. Brisbane, Australia: The University of Queensland.
- Hartmann D and Kwauk, C (2011) Sport and Development: An overview, critique, and reconstruction. *Journal of Sport and Social Issues* 35(3), 284-305.
- Hayhurst LMC, Giles AR and Wright J (2016) Biopedagogies and Indigenous knowledge: examining sport for development and peace for urban Indigenous

- young women in Canada and Australia. *Sport, Education and Society* 21(4): 549-569.
- Janssen I (2007) Physical activity guidelines for children and youth. *Canadian Journal of Public Health* 98 (Suppl. 2): 109-121.
- Janssen I and LeBlanc AG (2010) Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioural Nutrition and Physical Activity* 7: 40.
- Jarvis G and Thornton J (2012) *Sport, Culture and Society* (2<sup>nd</sup> ed). London: Routledge.
- Jeanes R (2013) Educating through sport? Examining HIV/AIDS education and sport-for-development through the perspectives of Zambian young people. *Sport, Education and Society* 18(3): 388–406.
- Jones C and Kennedy G (2011) Stepping beyond the paradigm wars: pluralist methods in learning technology. *Research in Learning Technology* 19.
- Kay T (2009) Developing through sport: Evidencing sport impacts on young people. *Sport in Society* 12(9): 1177-1191.
- Kidd B (2008) A new social movement: Sport for development and peace. *Sport in Society* 11(4): 370-380.
- Liu M, Wu L and Ming Q (2015) How does physical activity intervention improve self-esteem and self-concept in children and adolescents? Evidence from a meta-analysis. *PLoS ONE* 10(8): e134804.
- Loy JW (2015) Assessing the sociology of sport: On theory and method. *International Review for the Sociology of Sport* 50(4-5): 512-518.
- Moy B, Renshaw I, Davids K and Brymer E (2014) Overcoming acculturation: Physical

- education recruits' experiences of an alternative pedagogical approach to games teaching. *Physical Education and Sport Pedagogy* 18(1): 5-16.
- Nicholls S, Giles AR and Sethna C (2010) Perpetuating the 'lack of evidence' discourse in sport for development: Privileged voices, unheard stories and subjugated knowledge. *International Review for the Sociology of Sport* 46(3): 249-264.
- Papua New Guinea Department of Education (2004) Achieving a Better Future: A national plan for education 2005-2014. Available at:  
<http://www.education.gov.pg/quicklinks/documents/edu-plans/national-education-plan-2005-2014.pdf>
- Pate RR, Trost SG, Levi, S and Dowda M (2000) Sports participation and health-related behaviours among US youth. *Archives of Paediatrics and Adolescent Medicine* 154(9): 904-911.
- Rossi T (2015) Expecting too much: Can Indigenous sports programs in Australia deliver development and social outcomes? *International Journal of Sport Policy and Politics* 7(2): 181-195.
- Rynne S and Rossi A (2012) *The Impact of Indigenous Community Sports Programs: The Case of Surfing*. Canberra: Commonwealth of Australia.
- Schulenkorf N, Sherry E and Rowe K (2016) Sport for Development: An Integrated Literature Review. *Journal of Sport Management* 30(1): 22-39.
- Schulenkorf N, Sugden J and Burdsey D (2014) Sport for development and peace as contested terrain: place, community, ownership. *International Journal of Sport Policy and Politics* 6(3): 371-387.

- Sherry E and Schulenkorf N (2016) League Bilong Laif: rugby, education and sport-for-development partnerships in Papua New Guinea. *Sport, Education and Society* 21(4): 513-530.
- Siedentop D (1991) *Developing Teaching Skills in Physical Education*. Mountain View: Mayfield.
- Spaaij R, Oxford S and Jeanes R (2016) Transforming communities through sport? Critical pedagogy and sport for development. *Sport, Education and Society* 21(4): 570-587.
- Sparkes AC (2015) Developing mixed methods research in sport and exercise psychology: Critical reflections on five points of controversy. *Psychology of Sport and Exercise* 16(3): 49-59.
- Sparkes AC and Smith B (2014) *Qualitative research methods in sport, exercise and health: from process to product*. New York, NY: Routledge.
- Strong WB, Malina RM, Blimkie CJ, Daniels SR, Dishman RK, Gutin B, Hergenroeder AC, Must A, Nixon PA, Pivarnik JM, Rowland T, Trost S and Trudeau F (2005) Evidence-based physical activity for school age youth. *Journal of Pediatrics* 146(6): 732-737.
- Synergistiq (2015) 'Pacific Sports Partnerships' Phase One 2009 - 2014 Evaluation Report. Available at: [http://dfat.gov.au/about-us/publications/Documents/PSP\\_Phase\\_One\\_Evaluation\\_Report\\_2015\\_Final.pdf](http://dfat.gov.au/about-us/publications/Documents/PSP_Phase_One_Evaluation_Report_2015_Final.pdf)
- Tariq S and Woodman J (2013) Using mixed methods in health research. *JRSM Short Reports* 4(6): 2042533313479197.

- Thomas DR (2006) A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation* 27(2): 237-246.
- Tinning R (2010) *Pedagogy and Human Movement*. London: Routledge.
- Tinning R and Kirk D (1991) *Daily Physical Education: Collected Papers on Health-Based Physical Education in Australia*. Victoria: Deakin University Press.
- Trost S (2007) Active education: Physical education, physical activity and academic performance. Active Living Research: A National Program for the Robert Wood Johnson Foundation. Available at:  
[http://activelivingresearch.org/files/ALR\\_Brief\\_ActiveEducation\\_Summer2009.pdf](http://activelivingresearch.org/files/ALR_Brief_ActiveEducation_Summer2009.pdf)
- Trost S (2012) *Review of Junior Sport Framework Briefing Paper: Trends in Sport and Physical Activity Participation in Australian Children and Youth*. Brisbane, Australia: The University of Queensland.
- Trost S, Pate RR, Dowda M, Saunders R, Ward DS and Felton G (1996) Gender differences in physical activity and determinants of physical activity in rural fifth grade children. *Journal of School Health* 66: 145-150.
- Trost S, Ward DS, McGraw B and Pate RR (1999) Validity of the previous day physical activity recall (PDPAR) in fifth-grade children. *Pediatric Exercise Science* 11: 341-348.
- Trudeau F and Shepard RJ. (2010) Relationships of physical activity to brain health and the academic performance of school children. *American Journal of Lifestyle Medicine* 4: 138-150.



- Tudor-Locke C, Williams JE, Reis JP and Pluto D (2002) Utility of pedometers for assessing physical activity. *Sports Medicine* 32(12): 795-808.
- Tuhiwai Smith L (2012) *Decolonizing Methodologies: Research and Indigenous Peoples* (2nd ed). London: Zed Books Ltd.
- UNICEF (n.d.) Papua New Guinea: Education. Available at:  
[http://www.unicef.org/png/activities\\_4369.html](http://www.unicef.org/png/activities_4369.html)
- United Nations Development Program (2015) United Nations Development Program in Papua New Guinea: About Papua New Guinea. Available at:  
[http://www.pg.undp.org/content/papua\\_new\\_guinea/en/home/countryinfo.html](http://www.pg.undp.org/content/papua_new_guinea/en/home/countryinfo.html)
- United Nations General Assembly (2015) *70/1. Transforming our world: the 2030 Agenda for Sustainable Development* (A/RES/70/1, 2015). Resolution adopted by the General Assembly on 25 September 2015
- Wall M and Côté J (2007) Developmental activities that lead to dropout and investment in sport. *Physical Education and Sport Pedagogy* 12(1): 77-87.
- Weston AT, Petosa R and Pate RR (1997) Validation of an instrument for measurement of physical activity in youth. *Medicine and Science in Sports and Exercise* 29, 138-143.
- Welty Peachey J, Borland J, Lobpries J and Cohen A (2015) Managing impact: Leveraging sacred spaces and community celebration to maximize social capital at a sport-for-development event. *Sport Management Review* 18(1): 86-98.
- Welty Peachey J and Burton L (2016) Servant leadership in sport for development and peace: A way forward. *Quest* 1-15.

Whitley MA, Forneris T and Barker B (2014) The reality of evaluating community-based sport and physical activity programs to enhance the development of underserved youth: Challenges and potential strategies. *Quest* 66 (2): 218-232.