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The development of a questionnaire to measure the confidence of teachers to teach primary school physical education

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Introduction
The curriculum area of Physical Education (PE) has been charged with many important roles, including the physical, social, and emotional development of a child. Primary school has been identified as the ideal setting for the development of fundamental motor skills, which are imperative for continued participation in physical activity (Morgan, 2005). The development of fundamental motor skills allows for success and enjoyment to be achieved in physical education, which creates positive early learning experiences that can influence adult health behaviors and promote continued participation in physical activity. For fundamental motor skills to be developed and enjoyment to be achieved quality PE programs need to be delivered. Within the majority of Australian primary schools PE is taught by a generalist classroom teacher. Previous research has found that these teachers often experience feelings of low confidence and motivation toward the subject (Callea, Spittle, O’Meara & Casey, 2008; Morgan & Bourke, 2005, 2008). These feelings have been attributed to personal experiences with the subject, a limited amount of training, and ongoing support available.

The importance of Physical Education in early years
Quality PE programs that focus on physically educating young people in a enthusiastic, supportive, and encouraging environment have the opportunity to foster positive health behaviours and enjoyment in physical activity at the present time and into the future. It is during the primary school years that positive attitudes towards physical activity should be encouraged. For some students, PE at school may be the only opportunity they have to engage in any type of physical activity (Morgan, 2005). The need for quality PE programs in primary schools is strongly supported by the proposition that sport and PE are influential factors in motor skill development and refinement during childhood and adolescence (Gabbard, 2008). As children have the potential to reach a mature stage in a majority of fundamental motor skills by the age of six or seven (Gabbard, 2008), primary school PE is the ideal setting for the learning, development and mastering of these skills. Late childhood (7 - 10 years of age) is distinguished by the emergence of sport skill behaviours (Gabbard, 2008). These skills are the advanced version of the basic skills developed in earlier childhood. If these basic skills are not mastered, then individuals are unable to begin to develop more sport - oriented skill behaviours.
Proponents of the importance of establishing acceptable levels of fundamental motor skills have suggested that the attainment of these skills allow children to successfully participate in sport and physical activity throughout their lives (Gallahue & Donnelly, 2003; Gallahue & Ozmum, 2001).

Without the successful development of fundamental motor skills, and the consequential maturation of sport specific behaviours, many children find it extremely difficult to experience success and enjoyment in physical activity. An individual’s ability to competently perform motor skills appears to be a major reason for children engaging in physical activity and sport (Morgan, 2005). As previously stated, those who have positive experiences as a child and are engaged in physical activity are more likely to continue to lead an active lifestyle beyond their schooling years. A study by Bouffard, Watkinson, Thompson, Causgrove, and Romanow (1996) found that children with limited motor skill ability were less physically active and spent less time in social settings with their peers. This once again highlights the importance of quality physical education programs and how much influence they can have on children and the implications for health related behaviour later in life.

**Current Practices in Primary School Physical Education**

The process of defining physical education has been something of a preoccupation of educators for many years (Kirk, 2010). While physical educators seem to agree on what PE isn’t, the core aims of the subject are a lot less clear (Penny & Chandler, 2000). The multiple and diverse claims about the contributions the subject makes to a child’s development and later life has been criticised, with the degree to which PE can continue to make varied claims and pursue multiple agendas brought into question (Penny & Chandler, 2000). Along with the unclear definition of what physical education is, and the outcomes it should be achieving, further complication is added to the subject when trying to establish who is responsible for deciding on the content and activities being delivered (lisahunter, 2006). In many countries, such as Australia, the decisions regarding the delivery of physical education curriculum in primary schools is left up to the classroom teacher, who has often had limited training in the subject area (Green, 2008). This limited amount of training within the specialty area often leaves teachers feeling uncomfortable and unqualified to teach PE (Cundiff, 1990; Hickey, 1992). Xiang, Lowy and McBride (2002) found that low levels of confidence exhibited by generalist teachers towards teaching PE could be attributed to recognising that they are not equipped to teach PE after observing the complex nature of teaching PE. Morgan and Bourke (2005) found that generalist teachers possessed only moderate levels of confidence towards teaching certain content areas within PE. Games and Sports were reported to have the highest mean confidence rating, with gymnastics and aquatics the lowest. A later study conducted by the researchers (Morgan & Bourke, 2008), which explored the non-specialists teachers’ confidence to teach PE with reference to the nature and
influence of personal school experiences, also found participants exhibited only moderate levels of confidence in their PE teaching abilities. When asked to indicate specific PE content areas they would prefer not to teach, gymnastics and aquatics were at the top of the list once again.

Inadequate training, low levels of confidence, a lack of time, interest, limited resources and support are some of the major barriers to effective PE teaching (Morgan, 2005). These barriers can often lead to teachers avoiding teaching the subject, or specific content areas which they feel most challenged by, such as gymnastics and aquatics. Evans (1990), as cited in Morgan and Bourke (2005), proposed that teachers can feel quite intimidated in teaching a subject such as PE when student knowledge of sports and various games outweighs their own. When applying Bandura’s (1977) theory of social learning in this context, individuals with low levels of confidence may feel uncomfortable with the content, environment and teaching strategies associated with the subject. Ineffective teaching, avoidance behaviors, and a negative attitude towards PE, which can influence student attitudes, may result from a teacher’s doubt about their ability to impact on student outcomes (Morgan & Bourke, 2005).

Method

Participants
Data were collected from 133 4th year pre service primary teachers (26 male, 107 female) ranging in age from 21 to 45 year \( M = 24.36, SD = 4.34 \). The sample comprised 104 generalist primary educators and 29 primary physical education specialists. Both groups had completed one compulsory unit in physical education curriculum, with the specialists also having completed six units pertaining to knowledge and instruction in the sport sciences.

Testing Procedures
The study involved each participant completing a questionnaire containing 29 items which assessed their confidence to teach primary school physical education. On completion of their compulsory Physical Education curriculum unit and their last practicum experience, participants completed a hard copy version of the questionnaire during lecture time. Those who indicated that they would be willing to take part in the re-test phase of the study completed an online version of the questionnaire two weeks later.

Instrumentation
The questionnaire assessed the self-perceived levels of confidence towards primary school physical education. The measure was developed using the current teaching standards and guidelines put in place by government; the Victorian Institute of Teaching (VIT) and nationally recognised
organisations (e.g., The Australian Council for Health, Physical Education and Recreation). Recent
documents which outline the performance and knowledge expectations of teachers were examined
and integrated within the measure before the initial version was reviewed for content validity by a
panel of experts within the field. The questionnaire contained 29 items and required participants to
respond to the statement ‘I am confident in my ability to’ on a 6 point likert scale incorporating the
anchors of strongly disagree to strongly agree.

Data Analysis
Data analysis involved the exploratory factor analysis of the underlying structure of the items
designed to assess confidence to teach primary school physical education. Principal axis factoring
with direct oblimin rotation was used to reduce the number of items and identify the factor structure.
Test-retest stability and internal consistency of the subscales of the measure were also analysed.

Results
Using the principal axis factoring method, two factors with eigenvalues greater than one were extracted
accounting for 54% of the total variance. Direct oblimin rotation converged in ten iterations. Variables
with loadings greater than .10 were used to interpret the factors. After examining the loadings the
following labels were given to the factors: Factor 1, Management and Planning and
Factor 2, Implementation. Descriptive statistics for each of the factors are presented in Table 1

Internal consistency reliability values (Cronbach’s alpha) presented in Table 1 show very
good internal consistency for the questionnaire. Test retest correlation between measure completion
over a two-week interval for a small sample of 17 participants was satisfactory (r = .71).

<p>| Table 1: Descriptive Statistics for the Teacher Confidence in Physical Education Scale |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                 | Total           | Generalists     | Specialists     | Alpha           |</p>
<table>
<thead>
<tr>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>.71</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>96.23</td>
<td>18.65</td>
<td>91.92</td>
<td>17.96</td>
<td>111.65</td>
<td>11.73</td>
</tr>
<tr>
<td>Factor 1</td>
<td>61.63</td>
<td>10.42</td>
<td>59.39</td>
<td>10.31</td>
<td>69.66</td>
<td>5.99</td>
</tr>
<tr>
<td>(Management &amp; Planning)</td>
<td>Factor 2</td>
<td>34.59</td>
<td>9.16</td>
<td>32.53</td>
<td>8.80</td>
<td>42.00</td>
</tr>
</tbody>
</table>
**Discussion and Conclusion**

The findings of the study indicated that the development of the measure was generally successful. After exploratory factor analysis was performed a two factor structure was revealed and the number of items was reduced based on logical reasoning for exclusion and the internal consistency reliability values. The two factors contained slightly uneven number of items but appeared to have good discrimination between themselves and the generalists and specialists. Previous studies that have used questionnaires to gain information have often failed to provide evidence of the reliability and validity of the instrument so it is difficult to determine whether the measure developed here was more or less reliable. The positive trends demonstrated in the exploratory phase of the development of the Teacher Confidence in Physical Education Scale provide substantial impetus to move forward with a larger scale data collection.

Results from this study further support research, which has found that generalist primary teachers lack confidence towards teaching physical education. Results indicated that generalist teachers possessed moderate levels of confidence ($M = 91.92$ out of a possible range of 24 to 144) towards physical education. When comparing the results obtained by the generalists to the overall totals, they reported lower scores across all areas. These findings are consistent with previous research, which has examined the confidence of pre-service teachers (Morgan & Bourke, 2005). Specialists scored higher when compared to the overall total and to generalists. This finding was to be expected, considering the completion of specific training within the area. The scores achieved for the specialists, however, are not as high as we would have expected, given their specific training, with specialists only achieving scores marginally higher than those of the generalists (Byo, 1999). This result poses a number of questions to be considered concerning pre-service teacher preparation in the area of physical education. Morgan and Bourke (2005) found that teachers had greater confidence in the content areas of physical education if they believed they had received adequate teacher training. We found that both generalists and specialists achieved the highest score within the factor of ‘Implementation’. This factor contained questions that focused on the teaching of the specific content areas such as dance, gymnastics, fitness etc from the ACHPER professional standards for graduate teachers. Results achieved in the Management and Planning factor were not as high, which would indicate that the pre-service teachers felt more confident to implement the practical side of physical education but not as confident in activities such as maintaining records and understanding the place of physical education in the curriculum.

Successful and enjoyable PE experiences in the early years can have a significant positive impact on health behaviours for both the present and future (Kirk, 2005; Morgan, 2005; Morgan &
Bourke, 2008). Primary school is the ideal setting to foster efficacious physical activity oriented health behaviours via the delivery of quality PE programs. Within Australia the majority of primary school PE is taught by classroom generalist teachers. These teachers appear to have basic training within the specialty curriculum area and may feel uncomfortable and under qualified to teach the subject (Morgan & Bourke, 2005; Xiang, Lowy, & McBride, 2002). It could be beneficial to direct more time within pre-service education programs to the finer points of physical education such as planning, the role of physical education as a subject within the curriculum, and assessment methods and techniques so that they can be integrated with the practical content of teaching physical education.

References


