Teacher Perceptions of Physical Education in the Primary School: Attitudes, Values and Curriculum Preferences

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Abstract

The major aim of this study was to examine the relationship between teachers' curriculum preferences in the primary school and the relative value they place on PE compared to other key learning areas (KLAs) of the primary curriculum. Data were collected from 422 pre-service and 63 in-service classroom teachers. Results suggested that most respondents considered PE to be a relatively valuable KLA but indicated they would prefer to teach other KLAs rather than PE. Insufficient time was the most commonly cited impediment to the delivery of PE programs. Nearly all respondents agreed that specialist teachers should be involved in the teaching of PE in some capacity. Significant relationships were established between a number of attitudinal variables relating to PE and interesting findings emerged from post hoc analysis of group differences, particularly regarding in-service teachers. Given that many teachers would prefer not to teach PE, strategies must be devised to improve training and support for teachers or the employment of specialist PE teachers made a priority.

The curriculum of schools in New South Wales (NSW), Australia comprises six key learning areas (KLAs) throughout primary school including English, Mathematics, Science and Technology (S & T), Human Society and its Environment (HSIE), Creative and Practical Arts (CAPA), and Personal Development, Health and Physical Education (PDHPE). The classroom teacher generally teaches all six KLAs and decides upon program time allocation, although sometimes within parameters set by the school principal. Primary teachers are allowed flexibility in content selection and time allocation because policies concerning curriculum implementation are decided upon at the school level (Board of Studies [BOS], 1999). Evidently, most classroom teachers have responsibility for teaching physical education (PE)[1] in primary schools, although specialists are used in some non-government and a minimal number of government schools.

However, concerns have been raised in discussions regarding the quality of primary PE programs in Australia over a number of years (e.g., Hardman & Marshall, 2001; Senate Standing Committee on Environment, Recreation and the Arts [SSCERA], 1992; Thompson, 1996; Tinning, Kirk, & Evans, 1993). Research has indicated that classroom teachers encounter substantial barriers attempting to teach PE including low levels of confidence, lack of time, poor facilities, inadequate resources and low levels of interest (Morgan & Bourke, 2005; Thompson, 1996). Notably, many of these inhibitors are linked to teachers' attitudinal dispositions relating to PE teaching.

As long as classroom teachers remain responsible for teaching PE, it seems important to

1. Although classroom teachers are required to teach K-6 PDHPE, this paper primarily focuses on the PE component. Reasons for this decision include the strong rationale for PE in the primary school, what is seen as the poor quality and quantity of primary school PE and the unique practical nature of the PE teaching environment.

consider a teacher's perceptions and attitudinal disposition. Silverman and Subramaniam (1999) noted the importance of examining attitudes, "Attitude permeates everything we do. It is an important component in all aspects of human endeavor. Attitude influences whether we begin or continue with certain activities—and whether we achieve in certain areas" (p.97). Previous research has described how teachers' beliefs and attitudes impact on the teaching and learning process and become evident in their behaviours (Tabachnick & Zeichner, 1984). Furthermore, teachers' attitudes may vary when teaching different subjects (Wood, Cobb, & Yackel, 1990). As classroom teachers are required to teach a variety of subjects, teachers' attitudes towards different subjects and perceptions of a subject's value need to be assessed. A teacher's perceptions or affective disposition may have a profound affect on a student's attitude to PE (Aicinena, 1991; Carlson, 1995) and subsequently exert a significant influence on a student's PE experience and achievement of key outcomes (Lawson, 1983). It is of particular significance that researchers have found many classroom teachers hold negative attitudes towards PE (Brumbaugh, 1987; Faucette & Patterson, 1989; Howarth, 1987; Portman, 1996; Xiang, Lowy, & McBride, 2002), and question its value for children (Brumbaugh, 1987; Downey, 1979; Faucette & Patterson, 1989).

Xiang et al. (2002) examined the attitudinal disposition of pre-service classroom teachers before and after a field-based course using two open-ended questions. After this course, half of the pre-service classroom teachers indicated they were not willing to teach PE. In fact, the number of students willing to teach PE decreased from pre-test to post-test. The students reported they were more interested in academic subjects, they did not feel equipped to teach PE effectively, and the 'PE teaching environment' had a number of undesirable qualities (e.g., noise, discipline problems, large classes). Additionally, some researchers have found that classroom teachers do not believe participation in PE leads to any benefits for students. In a review of research comparing specialists and non-specialists, Faucette and Hillidge (1989) outlined that many classroom teachers believed PE possesses little value when compared to other subject areas. Downey (1979) asserted that many teachers teach PE poorly because they do not consider it to be of any value to children. Similarly, Brumbaugh (1987) found classroom teachers were uncertain of the purpose of PE and reported they generally placed a low priority on PE in relation to other subjects.

As the teacher has a considerable influence on the attainment of favorable outcomes for students, this study focused on pre-service and in-service teachers of primary school PE. It has been proposed that the quality of PE is associated with a teacher's commitment to PE and the way it is perceived and valued by the teacher. Therefore, a key aim of the current study was to examine the relationship between a number of important variables relating to teaching PE for teachers: curriculum preferences in the primary school, general feelings about PE, and the relative value placed on PE compared to other KLAs. Teachers' PE curriculum preferences and relative KLA values have not been previously measured while relationships between many of these variables have not been detailed in the literature. A subsidiary aim of this study was to ascertain respondents' perceptions regarding the employment of PE specialists in the primary school and to investigate the PE teaching programs of teachers. Specifically, the key research questions included:

1. What are the perceptions of teachers with regard to the importance of PE in the primary school setting relative to other KLAs?
2. What are the perceptions of teachers with regard to their teaching preferences concerning PE and other KLAs?
3. Do teachers favor the employment of PE specialists in primary schools?
4. What is the relationship between attitudinal variables used in this study relating to PE, preferences for PE teaching responsibility and types of PE programs delivered?

Method

Participants

Data were collected from 485 pre-service and in-service teachers in NSW. The pre-service teacher sample consisted of students studying a double degree (Bachelor of Arts/Bachelor of Teaching), majoring in primary education in the second (n = 156), third (n = 143), or fourth year (n = 123) of higher education at a NSW tertiary institution. The four-year integrated degree prepares students for teaching in the primary school. Primary education students enroll in two PE courses as part of their primary KLA curriculum method strand. In the 2nd Year, contact time involves a one-hour mass lecture and a one-hour tutorial per week for seven weeks. In the 3rd Year, a one-hour mass lecture and a two-hour tutorial is undertaken each week over nine weeks. Practical content for both courses includes activities from the four PE content strands of the K-6 PDHPE syllabus: Games and Sports, Gymnastics, Dance, and Active Lifestyle. All pre-service teachers from each year group (2nd, 3rd, & 4th) were asked to be respondents. Response rates for all cohorts were 86%, 82% and 81% respectively. The respondent categories for the in-service teachers included a random sample of classroom teachers in NSW primary schools from both government and non-government schools. In total, 63 in-service teachers were included from 37 different schools. Of the total sample, approximately 86% (n = 415) were female and 14% (n = 70) were male. This ratio reflects the composition of the primary teaching force and is consistent with the findings of Smith (1999) who revealed only 22.5% of teachers in Australian primary schools were male.

Data Collection Procedures and Instrumentation

Quantitative data was collected from all respondents via the administration of a questionnaire. Second Year students completed the questionnaire before undertaking any PE teacher education (PETE) and before completing any practicum teaching experience. Third year students completed the questionnaire immediately following completion of compulsory PETE and had experienced at least a two-week block practicum. The 4th Year students completed the questionnaire at the end of their last practicum experience at University. The 4th Year students had completed three different length practicums (2, 4 & 8 weeks). All selected in-service teachers were asked to respond to a mailed questionnaire.

The following constructs were developed and examined and will be described in turn: *Feelings towards PE; Key Learning Area Importance; Curriculum Teaching Preferences; PE Teaching Program of In-service Teachers;* and *Preference for PE Teaching Responsibility*.

Feelings towards PE.

In general, feelings or attitudes can be indicated on a continuum from negative to positive, reflecting the direction and intensity of the attribute (Ajzen, 1988). The *Toulmin Elementary Physical Education Attitude Scale (TEPEAS)* (Toulmin, 1973) was specifically designed to measure students' feelings and attitudes about PE. The original scale was considered to have high construct validity and internal consistency and was specifically used to evaluate changes in attitudes about a particular program (α = 0.91). The *TEPEAS* instrument was modified for this study to measure teachers' feelings about PE and included 17 items, comprising a six-point Likert scale with response options from strongly disagree to strongly agree. Respondents were instructed to answer each statement thinking only about PE lessons and not school sport or after-school sport.

Key learning area importance.

The primary school curriculum ranking scale was designed to determine respondents' perceptions of importance for all KLAs of the primary curriculum. Respondents ranked each KLA from *most important* to *least important*. For the purpose of this study, the position of PE on the ranking scale was examined and reflected respondents' perceptions regarding the value of PE relative to other KLAs. A score between one and six was

specified for each respondent depending on where he/she ranked PE. For example, if a respondent believed PE was the most important KLA for a child to study, he/she would receive a score of six. This pattern continued until a score of one would be obtained for a respondent perceiving PE as the least important KLA for children to study.

Curriculum teaching preferences.

Respondents' teaching preferences within the K-6 curriculum were assessed as classroom teachers may develop preferences for the subjects they teach. The *Subject Preference Inventory* (SPI; Markle, 1978) was modified to focus specifically on PE and required a forced selection. Markle (1978) stated that teachers' preferences for various subjects may affect the quantity and quality of instruction provided and ultimately, student learning and attitudes. Markle (1978) reported that the SPI was a valid and reliable measure of teaching preference. In the current study, respondents were asked to indicate whether they preferred to teach PE to the five other KLAs in the primary curriculum. For example, respondents were asked to circle either PE or English, PE or Creative and Practical Arts, and so on, for all KLAs in the primary curriculum. Respondents preferring to teach PE rather than another KLA were given one point. If a respondent preferred to teach PE over all other KLAs they would receive a score of five. If a respondent preferred to teach all other KLAs over PE, he/she would receive a score of zero.

Current teaching and preference for PE teaching responsibility.

In-service teachers were asked to indicate the quality and quantity of their current PE program. They were also asked to describe the range of activities offered in their program. Some questions were adapted from the *Pre-Service Teacher Education and Physical Education in NSW Primary Schools Survey* developed by O'Connell (1984). Respondents were also asked to indicate their preference for the teaching responsibility of primary school PE by indicating whether they thought PE specialists should be employed.

Data Analysis

Simple univariate analyses were used to screen the data. A normality check was undertaken for discrete variables to ensure distributions were not seriously skewed. *LISREL8* was used to establish fitted one-factor congeneric measurement models to assess item reliability, determine scale reliability and to develop factor score regression values for computing constructs. Frequency distributions and other descriptive statistics were also examined. Pearson Product Moment correlation coefficients were generated to establish bivariate relationships between variables. Several statistical tests were used to analyze the relationships among selected variables including chi-square (X^2), *t*-tests and analysis of variance (ANOVA). Scheffe's t-test for multiple comparisons was utilized in this investigation, helping to reduce Type I error.

Results

Attitudinal Constructs Relating to PE

Factor analysis of the *TEPEAS* instrument produced two separate factors: *Beliefs in the Benefits of PE* (example item—'PE encourages lifelong exercise habits') and *Attitude to Teaching PE* (example item—'I am generally enthusiastic about teaching PE'). Fitted one-factor congeneric measurement models were developed for both constructs. For *Beliefs in the Benefits of PE,* the most parsimonious model was established using 6 items, which provided an adequate fit of the data to the model. When the model was subjected to maximum likelihood estimation, the model was accepted, justified by the various fit indices (X^2 = 13.67, *df* = 9, p = .134, GFI = .995, RMR = .03, RMSEA = .03). A similarly adequate fit was observed for the *Attitude to Teaching PE* model (X^2 = 10.67, *df* = 5, p = .06, GFI = .998, RMR = .02, RMSEA = .04). Construct reliability was calculated as 0.87 and 0.92 respectively.

Overall, respondents generally agreed that PE is beneficial for students in physical, social, and

mental health domains. No gender differences emerged, $t(483) = 0.04$, $p > .05$. The 3rd Year (M = 4.90, SD = 0.71) and 4th Year (M = 5.01, SD = 0.72) pre-service teachers and in-service teachers (M = 4.96, SD = 0.63) possessed significantly stronger beliefs than 2nd Year pre-service teachers (M = 4.58, SD = 0.67) about the benefits of PE, $F(3, 481) = 10.84$, $p < .01$. In general, respondents slightly agreed/agreed with positively worded statements regarding attitudes to PE. There were significant gender and cohort differences for the *Attitude to Teaching PE* construct. Males (M = 5.24, SD = 0.86) scored significantly higher than females (M = 4.86, SD = 0.98), $t(483) = 3.01$, $p < .01$, while examination of cohort differences revealed a pattern of progressively higher scores through pre-service education. In-service teachers (M = 4.80, SD = 1.11) recording significantly lower scores than 4th Year pre-service teachers (M = 5.24, SD = 0.81), $F(3, 481) = 7.28$, $p < .01$.

Perceptions about the Importance of PE and Teaching Preferences for PE

In the current study, mean scores indicated that PE was ranked fourth overall behind English, Math and HSIE and above S & T and CAPA. No significant differences were apparent for gender, $t(87) = 1.72$, $p > .05$. Third Year pre-service teachers (M = 3.00, SD = 1.13) ranked PE significantly higher than the 2nd Year pre-service teachers (M = 2.60, SD = 1.25), $F(3, 481) = 3.93$, $p < .01$. Respondents were also asked to indicate preference to teach PE compared with each of the other KLAs and a teaching preference score was calculated. In general, respondents would prefer to teach other KLAs to PE. Males (M = 2.64, SD = 1.52) scored significantly higher on the teaching preference measure than females (M = 1.47, SD = 1.29), $t(483) = 6.85$, $p < .01$. It was evident the 3rd Year cohort (M = 2.03, SD = 1.54) had a higher preference for teaching PE than both the 2nd Year (M = 1.35, SD = 1.27) and 4th Year cohorts (M = 1.46, SD = 1.25), $F(3, 481) = 7.20$, $p < .01$. Furthermore, nearly all respondents preferred to teach other KLAs than PE (see Table 1). Only the results for the in-service group revealed a higher teaching preference percentage for PE over another KLA, preferring to teach PE over S & T. Otherwise, all respondents in the study in each cohort would prefer to teach all other KLAs than PE.

Table 1

Primary Curriculum KLA Teaching Preference Relating to PE—Cohort Comparison

Cohort	2nd (n = 156)		3rd (n = 143)		4th (n = 123)		In-service (n = 63)		n = 485	
Teaching Preference	Other KLA	*PE*	Other KLA	*PE*	Other KLA	*PE*	Other KLA	*PE*	Other KLA	*PE*
S & T	62.2%	*37.8%*	51.7%	*48.3%*	55.3%	*44.7%*	47.6%	*52.4%*	55.5%	*44.5%*
ENG	75.6%	*24.4%*	69.9%	*30.1%*	87.0%	*13.0%*	79.4%	*20.6%*	77.3%	*22.7%*
MATHS	69.2%	*30.8%*	61.5%	*38.5%*	74.8%	*25.2%*	77.8%	*22.7%*	69.5%	*30.5%*
HSIE	78.8%	*21.2%*	56.6%	*43.4%*	74.8%	*25.2%*	55.6%	*44.7%*	68.2%	*31.8%*
CAPA	78.8%	*21.2%*	57.3%	*42.7%*	61.8%	*38.2%*	58.7%	*41.3%*	65.6%	*34.4%*

Current PE Teaching Program of In-service Teachers

Results indicated that approximately 32% of classroom teachers taught PE more than three times a week, 54% taught PE once a week and 14% did not teaching PE on a regular basis. It was evident that most in-service teachers (approximately 70%) had limited variety in their

programs. In-service teachers were also asked to indicate the major factors inhibiting the delivery of their PE program. Results indicated that 76% of the in-service sample believed insufficient time was the major barrier for teaching PE regularly. Other reasons provided included insufficient training (13%), lack of personal experience (7%), and inadequate facilities (4%).

Preference for PE Teaching Responsibility

In the present study, almost all in-service teachers (91.5%) indicated that they would support the utilisation of specialist PE teachers. As a group, the pre-service teachers were not as supportive and this difference between cohorts was significant, X^2 (3, N = 485) = 35.15, $p < .01$. The 4th Years were the most undecided cohort with 53.0% supporting the employment of a specialist compared to 75.7% of 3rd Year students and 58.9% of 2nd Year students, X^2 (2, n = 422) = 15.52, $p < .01$. Overall, 66.7% of respondents would support the employment of a specialist PE teacher in the primary school. Respondents were also asked to indicate the level of PE specialist appointment preference. Nearly all respondents (98%) agreed that specialists should be involved in some capacity. Responses indicated employment on a 'part-time basis' to be the preferred level of appointment (43.8%), followed by full-time basis support (28.8%) and occasional consultative basis support (24.9%). Only 2.5% suggested that specialists were not necessary. Overall, 72.6% of the sample believed specialists should be employed on at least a part-time basis.

Relationship Between Key Variables

Table 2 displays the correlation matrix for a number of key variables measured in the study for pre-service and in-service teachers separately, given the differences in results expected. Significant and positive correlations were established between many key variables. Pre-service teachers who possessed more positive feelings towards PE were also more likely to believe PE was an important KLA and have a preference for teaching PE to other KLAs. Those pre-service teachers who possessed a more positive attitude to teaching PE and greater preference for the teaching of PE were less inclined to believe a PE specialist was needed. Results were similar for in-service teachers, however, no significant relationships were found between the *PE importance ranking* variable and either the *Attitude to Teaching PE* or the *Preference for Teaching PE* variable. Notably, the current *PE Teaching Program* variable was significantly correlated with the *Attitude to Teaching PE* and *Preference for Teaching PE* variables.

Discussion

Most respondents indicated they believed the teaching of PE may lead to favorable short and long-term benefits for students in physical, social, and mental health domains. The results support findings of Xiang et al. (2002) and Thompson (1996) and suggest that while non-specialists may not feel particularly confident about teaching PE, they still recognize its potential value. However, these results contrast with the assertions of others (Brumbaugh, 1987; Downey, 1979; Faucette & Hillidge, 1989) who have found that non-specialists do not consider PE to be of any value for children. The influence of PETE for respondents was again a plausible explanation for 3rd Year, 4th Year, and in-service cohorts scoring significantly higher than 2nd Year pre-service teachers in variables relating to beliefs. Previous studies have suggested the positive influence of field-based experiences in PETE for non-specialists (Ashy & Humphries, 2000; Xiang et al., 2002). On average, respondents held moderately positive attitudes towards the teaching of PE. Males generally held more positive attitudes to PE than females. Results indicated higher scores for the more advanced cohorts in pre-service education. This again suggests the PETE of teachers has some effect on attitudes about teaching PE. Scores were lower for this construct for classroom teachers.

Table 2

Intercorrelations Between Subscales for In-service and Pre-service Teachers

	1	2	3	4	5	6
In-service Teachers (n = 63)						
1. Belief in Benefits of PE	—	.58**	.26*	.32*	.06	.00
2. Attitude to Teaching PE		—	.23	.58**	-.04	.34**
3. Importance ranking for PE			—	.24	-.07	.03
4. Preference for teaching PE				—	.00	.27*
5. Preference for PE specialist[a]					—	.33*
6. PE Program[b]						—
Pre-service Teachers (n = 422)						
1. Belief in Benefits of PE	—	.60**	.29**	.31**	-02	NA
2. Attitude to Teaching PE		—	.42**	.47**	-23**	NA
3. Importance ranking for PE			—	.48**	-05	NA
4. Preference for teaching PE				—	-11*	NA
5. Preference for PE specialist[b]					—	NA

[a] Preference for PE Specialist Variable: Would you prefer PE Specialists to be employed? 1 = No; 2 = Yes

[b] PE Program Composite Variable: Multiplication of scores for teaching frequency and scores for program variety. Higher scores represent the delivery of more frequent and varied PE programs.

* $p < .05$. ** $p < .01$.

Mean scores indicated PE was considered a generally important component of the curriculum. PE was generally ranked fourth behind English, Maths and HSIE in terms of relative importance. Males ranked PE significantly higher than females, suggesting that males value the contribution of PE to the curriculum more than females. The possible influence of pre-service education in PE may offer some explanation for the pre-service teachers' results. The 3rd Year cohort ranked PE significantly higher than the 2nd Year cohort. It is possible that 3rd Year students held higher perceptions of the importance of PE because they had just finished the last of their two courses in PE at university. The rationale, aims, and importance of PE had recently been presented to 3rd Year students, whereas 2nd Year students had not completed any courses in PE at the time of questionnaire administration.

Respondents would prefer not to teach PE if given the choice between teaching PE and another KLA. This was confirmed for all cohorts. As with the PE ranking score, males scored significantly higher on the teaching of PE preference measure than females. Third Year students scored higher than both 2nd Year and 4th Year students. Fourth Year students had just completed a teaching internship, where it is possible that PE was infrequently taught and lacked variety, impacting on their teaching preferences. Overall, PETE may have assisted the development of higher opinions concerning the value of PE in the primary curriculum. In-service teachers indicated they would strongly support the introduction of specialist PE teachers in primary schools. The majority of respondents supported the notion that PE specialists should be employed in primary schools, at least on a part-time basis.

Overall, it is evident that classroom teachers require greater levels of support to help overcome identified barriers (e.g. including time pressures, inadequate resources & lack of expertise) or specialist teachers should be utilised. This appears to be the consensus shared by both pre-service and in-service teachers. Thompson (1996) and Kerr and Rodgers (1981) reported similarly high support from non-specialists for the introduction of PE specialists in primary schools. However, pre-service teachers were not as supportive of the full-time employment of PE specialists. This may be because pre-service teachers are more optimistic and enthusiastic about their abilities to teach PE, perhaps being less aware of the challenges inherent with the implementation of the K-6 syllabus.

It was found that the majority of in-service teachers teach PE once a week or less and their programs offer little variety in activities for students. The two greatest inhibiting factors to the effective implementation of frequent PE lessons were insufficient time and insufficient training. Previously, Cundiff (1990) reported classroom teachers cited other teaching responsibilities and perceptions of lack of expertise as inhibiting factors.

Some significant relationships emerged when key variables were examined for pre-service and in-service teachers. For pre-service teachers, respondents who held more positive attitudes to teaching PE and preferred to teach PE to other KLAs also believed it was an important KLA and that PE was beneficial for students. However, despite similar findings for in-service teachers, the much smaller numbers meant that no significant relationships were established between the PE importance ranking variable and Attitude to Teaching PE or the Preference for Teaching PE variable. Teachers who held more positive attitudes to teaching PE were also more likely to deliver frequent and varied programs. Interestingly, no significant relationships were found between the PE Program variable and the *Beliefs in the Benefits of PE* or the *PE Importance Ranking* variable.

Implications and Conclusion

A range of implications for PETE and PE professional development for teachers arose from the findings. The role of ongoing professional development was magnified considering the pattern of lower scores for in-service teachers on a range of important variables relating to PE teaching. It appears that in-service teachers' perceptions of the value of PE remain stable, however, their attitudes regarding PE teaching appears to change. Previous research may provide some explanation for these tendencies. Zeichner and Tabachnick (1981) suggested many of the effects of teacher education on an individual's attitudes and beliefs are only temporary. They described the 'wash out' effect that occurs during the first years of employment in schools. The importance of early successful PE teaching experiences is again highlighted to reinforce any favorable improvements in attitudes and perceptions developed during pre-service education. Additionally, in-service courses and improved access to quality resources/facilities for classroom teachers need to be provided to nullify the 'wash out' effect that has been confirmed, to some extent, in this study. The success and provision of appropriate professional development courses for this purpose should be more extensively researched, as some writers have questioned the influence of these courses on the attitudes and teaching quality of non-specialists (Carney & Chedzoy, 1998; Secker, 1988; Williams, 1979).

Overall, teachers in this study believe that PE is beneficial for students and that PE is an important KLA in the primary curriculum. However, most would prefer to teach other KLAs than PE, if given the choice, and would prefer specialist teacher involvement in the implementation of PE programs in the primary school. As found in the Senate Inquiry in 1992 (SSCERA, 1992), it seems there is support for PE in primary schools as a valuable component of the curriculum, but teachers would generally prefer to teach other KLAs for a range of reasons including lack of time, training and expertise. The results of this study indicate that PE specialists would be

accepted by most non-specialists as an asset in primary schools. Recommendations for full-time employment of specialist teachers, as a potential solution to the problems facing primary school PE, must be weighed up against the reality that governments seem largely reluctant to finance such a position. Perhaps it is futile to continue to promote the position of the full-time specialist physical educator in primary schools, particularly considering the lack of success of recent recommendations supporting the introduction of specialists. Unless the employment of specialist teachers on a part-time basis (or at least in an assistant or supervisory role to classroom teachers) is a more economically viable solution, it appears that attention must focus on the pre-service and in-service education of the classroom teacher who is currently responsible for the delivery of PE programs in most Australian primary schools.

Limitations of Study

As this study only examined pre-service teachers from one university, results should be treated with some caution. Future research should look to examine these relationships across universities and for different KLAs. The cross-sectional study design must be considered a limiting factor of the study, as cross-sectional studies do not allow for the measurement of change.

Suggestions for Future Research

More detailed analysis of cohort differences would require an examination of the influence of various practicums on relevant variables. The quantitative data obtained could be supplemented by more comprehensive qualitative data collected through in-depth interviews with a representative sample from each group. Longitudinal data could be collected assessing the impact of different practicum structures and intervention strategies on attitudes and beliefs about PE. Moreover, possible causal relationships between the attitudinal constructs could be examined.

REFERENCES

Aicinena, S. (1991). The teacher and student attitudes toward physical education. *The Physical Educator, 48*(1), 28-32.

Ajzen, I. (1988). *Attitudes, personality and behavior*. Milton Keynes: Open University Press.

Ashy, M., & Humphries, C.A. (2000). "Don't use balloons on windy days": Elementary education majors' perceptions of teaching elementary physical education. *Action in Teacher Education*, *22*(1), 59-71.

Board of Studies. (1999). *Personal development, health and physical education K-6: Principals' package*. Available from the Board of Studies NSW K-6 Web site, http://www.bosnsw-k6.nsw.edu.au/pdhpe/pdhpe_index.html

Brumbaugh, J.I. (1987). A view of physical education: Perceptions of five classroom teachers. *Dissertation Abstracts International, 48(07)*, 1698. (UMI 8719151)

Carlson, T.B. (1995). We hate gym: Student alienation from physical education. *Journal of Teaching in Physical Education*, *14*(4), 467-477.

Carney, C., & Chedzoy, S. (1998). Primary student teacher prior experiences and their relationship to estimated competence to teach the national curriculum for physical education. *Sport, Education and Society*, *3*(1), 19-36.

Cundiff, L.B. (1990). Perceptions and behaviors of classroom teachers concerning elementary physical education. *Kentucky Association for Health, Physical Education Recreation and Dance Journal*, *26*(2), 27:29.

Downey, J. (1979). The training in physical education of the non-specialist primary school teacher. *The Bulletin of Physical Education, 15*(1), 5-10.

Faucette, N., & Hillidge, S.B. (1989). Research findings—physical education specialists and classroom teachers. *Journal of Physical Education, Recreation & Dance, 60(7),* 51-54.

Faucette, N., & Patterson, P. (1989). Classroom teachers and physical education: What they are doing and how they feel about it. *Education*, *110*(1), 108-114.

Hardman, K., & Marshall, J.J. (2001). World-wide survey on the state and status of physical education in schools. In Doll-Tepper, G. (Ed.), *Proceedings of the World Summit on Physical Education*, Berlin 3rd-5th November, 1999 (pp. 15-37). Berlin: International Council of Sport Science and Physical Education.

Howarth, K. (1987). Initial training in primary physical education—no substitute for team-work. *British Journal of Physical Education*, *18*(4), 152-153.

Kerr, J.H., & Rodgers, M.M. (1981). Primary school physical education—non-specialist teacher preparation and attitudes. *The Bulletin of Physical Education*, *17*(2), 13-20.

Lawson, H.A. (1983). Toward a model of teacher socialization in physical education: Entry into schools, teachers' role orientations, and longevity in teaching (Pt. 2). *Journal of Teaching in Physical Education*, *3*(1), 3-15.

Markle, G.C. (1978). Assessing the validity and reliability of the subject preference inventory with pre-service elementary teachers. *Journal of Research in Science Teaching*, *15*(6), 519-522.

Morgan, P.J. & Bourke, S.F. (2005). An investigation of pre-service and primary school teachers' perspectives of PE teaching confidence and PE teacher education. *ACHPER Healthy Lifestyles Journal 52*(1), 7-13.

O'Connell, M. (1984). The practice of physical education in primary schools in New South Wales. In B. Leelarthaepin & E. Chesworth (Eds.), *Fitness in young Australians* (pp. 15-24). Sydney: Human Performance Laboratory.

Portman, P.A. (1996). Pre-service elementary education majors beliefs about their elementary physical education classes (Pt. 1). *Indiana Association for Health, Physical Education, Recreation and Dance Journal, 25*(2) 25-28.

Secker, A. (1988). In-service provision for primary teachers in the teaching of PE. *The Bulletin of Physical Education*, *24*(3), 13-23.

Senate Standing Committee on Environment, Recreation and the Arts. (1992). *Physical and Sport Education.* Canberra: The Parliament of the Commonwealth of Australia.

Silverman, S., & Subramaniam, P.R. (1999). Student attitude toward physical education and physical activity: A review of measurement issues and outcomes. *Journal of Teaching in Physical Education*, *19*(11), 97-125.

Smith, J. (1999, November). *We need more males in primary teacher education! or do we?* Paper presented at the annual conference of the Australian Association for Research in Education, Melbourne, Victoria.

Tabachnick, B.R., & Zeichner, K.M. (1984). The impact of the student teaching experience on the development of teacher perspectives. *Journal of Teacher Education, 35*(6), 28-36.

Thompson, K. (1996). *Physical education and sport in Hunter region primary schools*. Unpublished doctoral dissertation, University of Newcastle, New South Wales.

Tinning, R., Kirk, D., & Evans, J. (1993). *Learning to teach physical education*. Sydney: Prentice Hall.

Toulmin, M.L. (1973). *The development of an original instrument to measure the expressed attitudes of children toward the elementary school program of physical education*. Unpublished master's thesis, Texas Woman's University. Microform Publications (Acc No.16716. Classification No. UD76#270): International Institute for Sport and Human Performance, University of Oregon, Eugene.

Williams, E.A. (1979). Physical education in the junior school: A study of the teachers involved. *The Bulletin of Physical Education*, *15*(3), 5-13.

Wood, T., Cobb, P., & Yackel, E. (1990). The contextual nature of teaching: Mathematics and Reading instruction in one second-grade classroom. *Elementary School Journal*, *90*(5), 497-513.

Xiang, P., Lowy, S., & McBride, R. (2002). The impact of a field-based elementary physical education methods course on pre-service classroom teachers' beliefs. *Journal of Teaching in Physical Education*, *21*(2), 145-161.

Zeichner, K.M., & Tabachnick, B.R. (1981). Are the effects of university teacher education 'washed out' by school experience? *Journal of Teacher Education*, *32*(3), 7-11.

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