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Upper primary students' attitudes toward physical education in New South Wales

Abstract

This pioneering project investigated the attitudes of Stage 3 primary students toward Physical Education (PE) in New South Wales Department of Education and Communities (NSW DEC) primary schools using an existing instrument developed and validated by Phillips and Silverman.1 Although numerous studies have reported on the attitudes of pre-service teachers, policy makers, secondary students and various other stakeholders in PE, no Australian research has yet investigated the attitudes of primary students - those whom the subject is intended to benefit. Such insight is needed as positive experiences in PE and the development of positive attitudes have been proven to motivate engagement in physical activity outside school. The pen-and-paper questionnaires were completed by 1070 students from 21 NSW DEC primary schools. Descriptive and inferential analyses of resulting data illuminated several key themes. First, attitudes towards PE are positive and students enjoy PE. Second, there is a clear relationship between the teacher and positive student attitudes toward PE. Third, students at low Index of Community Socio-Educational Advantage (ICSEA) value schools exhibit more positive attitudes toward PE than students at high ICSEA value schools. The study was timely and significant as it sheds light on the impact of the new Australian National Curriculum and the increasing emphasis on high-stakes testing such as NAPLAN in NSW. The international literature has reinforced that the attitudes of students, the key stakeholders in PE, should be understood to ensure that experiences in PE are positive and thus promote healthy, active lifestyles.

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Introduction

The development of the Australian National Curriculum and increasing emphasis on high-stakes testing has caused a radical upheaval of Australian education. While the history of this period is yet to be written it is clear that Australian education has been considerably transformed. Like all key learning areas, Health and Physical Education (HPE) have been scrutinised and significant debates have been raised in both popular media and the academic domain as to the impacts of such upheaval. Contemporary Australian Physical Education (PE) research pays particular attention to issues such as curriculum content,[2] pedagogy[3] and teacher training,[4] yet surprisingly there has been no voice given to students, the key stakeholders in education. PE remains under scrutiny which necessitates that students are given a voice to ensure curricular decisions suit their needs. As an area of Australian education research, PE has to date neglected this student voice and in particular, that of primary students.

The emergence and constant legitimization of PE in Australian education research reflects the subject's esteemed status in society. PE is considered a key vehicle for the promotion of active, healthy lifestyles among children[5,6] therefore as an academic discipline PE aims to "develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles".[7] There is a definite link between school experience and engagement in physical activity outside of school; scholars[5,7–14] recognise that since the aim of PE is to promote active and healthy lifestyles, positive experiences in PE and the development of positive attitudes are important as they motivate students' engagement in physical activity outside of school. Importantly these attitudes also serve as predictors of future participation in physical activity.[1,15–18] While there is no disputing the above, there has been little attempt to investigate or document student attitudes toward PE in Australian schools. Longer-term, an understanding of student attitudes will also assist educators and policy-makers to create learning environments that nurture and enhance student learning in PE[14] and which promote healthy and active lifestyles through the delivery of quality PE. As Subramaniam & Silverman[14] posit, "impacting students' attitudes toward physical activity in physical education, therefore, could have a major effect on public health". This study has scope to address rising contemporary health concerns related to youth obesity, physical inactivity and mental health.[13,19]

Given the above conditions, the overall aim of this study was to produce a comparable analysis of student attitudes toward PE in NSW Department of Education and Communities (DEC) primary schools in order to rectify the neglect of primary students' voices in the literature, both locally and on a broader international scale. The study investigated attitudes held by Stage 3 students in NSW DEC primary schools toward PE and in doing so addressed the following questions:

a. Are the attitudes held by NSW Stage 3 primary students toward PE generally positive or negative?

b. Do attitude sub-factors of teacher or curriculum have more influence on student attitudes toward PE?

c. Do school contextual factors such as location or Index of Community Socio-Educational Advantage (ICSEA) value influence student attitudes toward PE?

In order to answer these questions the operational definition of attitude must be understood as "an individual's evaluation of beliefs and feelings (positive or negative) about the attitude object".[17] There has been debate as to the conceptualisation of attitude "as a single-component, two-component or multi-component construct by attitude researchers"[17] yet most contemporaries accept the dual-component model of attitude, involving affect and cognition.

Literature review

As an area of Australian educational research, the wide and varied discipline of PE values and promotes myriad research avenues and associated methodologies in the consideration of issues related to health and physical activity. Yet while Australian PE research has given voice to various stakeholders and in particular, pre-service teachers,[20–23] a remarkable scarcity of research has directly involved Australian school students, those whom the subject is designed to benefit. This has not been the case in international research where attempts have been made to investigate the attitudes of students over a number of years. In particular, a significant body of literature has emerged which clearly acknowledges the significance of student attitudes toward PE. While this material originates primarily from the United States and focuses on the attitudes of secondary students toward PE, the research seems to be generally in agreement and a number of themes emerge.

First, there is consensus that positive attitudes toward PE in school settings motivate participation in lifetime physical activity outside school. [4,15,24,25] It is also agreed that negative attitudes toward PE predict avoidance of physical activity outside school.[9–12] This idea, that attitude guides behaviour is grounded in the Theory of Reasoned Action which proposes that a person's personal belief systems influence their attitude and therefore determine their behaviour.[26,27]

Second, there is much discussion to support the significance of the affect attitude component, reported in the literature under various names implying enjoyment. For example, Rikard & Banville[25] found that "the majority of students liked physical education due to the fun factor" (p. 396) while Subramaniam & Silverman[14] reported higher attitude scores in the enjoyment domain than the perceived usefulness domain in their investigation of secondary students' attitudes toward PE in a study conducted in the United States. Various factors have thus been examined as potential mediators of student enjoyment in PE. Advocates of game-based PE conclude that this pedagogical approach enhances student enjoyment more than traditional direct instruction.[3] Shropshire et al.,[16] identified assessment and environmental adjustment as the most powerful predictors of interest in PE and dismissed the influence of the PE teacher (p. 31), consistent with past studies.[28,29] In contrast Luke & Sinclair[30] identified the PE teacher as a significant "determinant of negative attitudes toward physical education". Student skill level has also been identified as a potential mediator of PE enjoyment by various researchers.[31,32]

The third key characteristic of the literature investigating student attitudes is the distinct methodological preference among researchers. In accordance with the objectivist perspective of contemporary attitude theory, the majority employ quantitative methods in the investigation of student attitudes toward PE[1,24] with only a limited body of qualitative research related to the topic.[15,25] This is not surprising given the psychometric preference for absolute results over the subjectivity of qualitative analysis. Quantitative research also facilitates investigation of larger and more varied populations since resultant objective data is "easily converted to numerical form, which can then be statistically analysed".[33] This allows realistic access to significant research samples, beyond the possibility of qualitative methodologies. Though there has indeed been extensive international research into student attitudes toward PE, as Shropshire et al.,[16] acknowledge "To date the majority of research has focused almost exclusively on the attitudes of secondary school children with only a limited amount of research examining the attitudes of primary school aged children towards physical education." A theme which persists in the present research landscape.

This distinct paucity of empirical research into the attitudes of primary students can, according to the literature, be attributed to two main factors. First, the absence of any definitive measurement instrument[1,17] and second, the perceived difficulties researchers face in obtaining accurate data from young children. As Birtwistle & Brodie[5] state "there is a lack of stability of attitudes in young children [whilst] validity associated with attitudes is sometimes questionable if pupils' knowledge and understanding of a subject area is not at a high enough level to allow them to make intelligent responses to the attitude statements." However, contemporary attitude theory posits that attitudes take hold at a young age and quickly become ingrained.[1] It is therefore of great interest to investigate the attitudes of younger children before they reach secondary school so these may be addressed, since with age attitudes become increasingly difficult to alter.[34]

Critically, the required investigation of younger students became possible only recently when a valid and reliable instrument for measuring upper primary students' attitudes towards PE appeared in the United States; "Fourth and Fifth Grade Students' Attitudes Toward Physical Education".[1] The researchers present the first quantitative instrument for measuring primary students' attitudes toward PE which may realistically "permit both future longitudinal and cross-sectional research". This instrument is the first evidence in the literature of a transferrable tool having been created, despite recent studies also claiming to investigate the attitudes of younger students toward physical activity.[15,35] Phillips & Silverman[1] in their work "to develop an instrument to assess fourth and fifth grade students' attitudes toward physical education" modified an existing instrument also created by Silverman and associates,[17] and designed for use with middle and high school students. Phillips & Silverman[1] emphasise that attention to reliability and validity is critical in all research, and accordingly the researchers detail extensive processes of design, development and validation which were completed before distribution of their new questionnaire. The instrument and associated statistical analysis were found to be "psychometrically acceptable" [1] with a high degree of both validity and reliability when administered to upper primary students. However, given its recent publication it is not surprising that there exists little evidence of the instrument having been used, and none of its distribution in an Australian context.

Despite the availability of an appropriate measurement instrument and the findings of recent international research, the identified neglect of a student voice in Australian PE literature raises questions as to the legitimacy of the field. Furthermore, given current educational climates with the development of a new National Curriculum and the increasing emphasis on high-stakes testing such as NAPLAN[36] the status of PE as a key learning area remains under scrutiny. The time is ripe for improvement and numerous authors in the field have made recommendations so that time spent in PE is indeed valuable and enjoyable for all.[5] The overarching aim of PE is the promotion of active, healthy lifestyles[1,5,15–17,24,25,37] therefore it is crucial that existing student attitudes toward the subject are understood so that measures may be taken to mediate these where appropriate. "Since it is acknowledged that positive attitudes toward PE are an important variable for present and future physical activity it is imperative that ways of arresting, at an early age, any fall in enthusiasm for physical education are found".[16] This study has illuminated for the first time Australian primary students' attitudes toward PE, evidence of which

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has been severely lacking in the research discourse, to inform improvements to Australian PE and ensure it remains valuable and enjoyable for all.

Methods

In order to obtain the absolute results preferred by psychometric theory and to facilitate investigation of a large population, an objectivist, quantitative questionnaire methodology was selected. Quantitative methods of data collection are favoured in researching attitudes toward PE, most often in the form of questionnaires as the resultant objective data is "easily converted to numerical form, which can then be statistically analysed".[33]

Contact was made with Professors Silverman & Phillips,[1] who granted permission for the use of their validated research instrument "Fourth and Fifth Grade Students' Attitudes Toward Physical Education".[1] The questionnaire was carefully constructed and validated through a multi-level process and includes sixteen items. Item responses are based on a five point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The dual-component model of attitude has been applied and facilitates testing of two attitude components; enjoyment (affect) and usefulness (cognition), with two attitude sub-factors; teacher and curriculum. The instrument has been proven to yield "reliable and valid scores to examine fourth and fifth grade students' attitudes toward physical education".[1] Using a pre-validated instrument affords the current study a high degree of generalizability, "the core of scholarship"[19] due to the accepted integrity of the tool and the potential for comparison with other research.

Once permission was obtained for use of the questionnaire, and ethics approval had been granted by both the University of Sydney (2014/146)1 and the Department of Education SERAP (CORP14/3825, DOC14/245340, SERAP 201430) 1, a representative sample of NSW DEC primary schools were invited to take part in the study. From the schools which responded positively, a random sample of 30 schools was then officially invited to take part. After consent forms1 signed by students and their caregivers had been returned, the questionnaires were administered by school staff during school hours. In total 21 NSW DEC primary schools submitted completed questionnaires making a total sample of 1070 anonymous student participants. All participating schools had structured PE programs based on the current NSW K-6 Personal Development Health and Physical Education (PDHPE) syllabus. Ethics authorities did not grant permission to record either the age or gender of the students, though it would be fair to assume a standard gender breakdown since all participating schools were co-educational and that being in Stage 3 most students were between 10 and 12 years old.

The 1070 anonymous pen-and-paper questionnaire responses were entered into Microsoft Excel, accompanied by contextual information made available on the Australian Curriculum and Reporting Authority (ACARA) 'My School' website. School contextual factors including location and ICSEA values for 2013 were entered along with student enrolments, number of teaching staff and various student population statistics. The data was then analysed as follows, where letters (a), (b), (c) correspond to the guiding research questions:

a) Initial descriptive data analysis based on responses to the sixteen individual items identified general trends and variables for further analysis, considering the items as per their theme; affect-teacher (questions 7,9,13,15), affect-curriculum (questions 1,2,4,14), cognition-teacher (questions 3,11,12,16), and cognition-curriculum (questions 5,6,8,10).

b) For the calculation of attitude scores the sixteen questionnaire items were categorised into four attitude constructs; cognitive aspects of PE, affective aspects of PE, PE activities and PE teachers. These constructs reflect the two attitude components (affect and cognition) and two attitude sub-factors (teacher and curriculum) targeted by Phillips & Silverman's[30] questionnaire. Response data was uploaded into Statistical Package for the Social Sciences (SPSS), the most commonly used computer package for quantitative data analysis, particularly for large data sets.[33] Reverse coding was completed for appropriate items to ensure negative phrasing did not cause an inaccurate reflection of the students' attitude scores, calculated by summing the scores for each attitude construct.

c) Inferential analyses were then conducted. Spearman's rank-order correlation coefficient, a standardized measure of the strength of the relationship between ranked variables,[38] was used to measure the relationships between attitude scores. Finally, given the irregular distribution of data the Mann-Whitney U-test, a non-parametric equivalent of the independent t-test which compares differences between two independent samples,[38] was applied to shed light on the relationships between student attitudes and school contextual factors.

Results

Part One: Descriptive Analysis

Initial descriptive analyses were conducted to identify key trends and variables for further investigation (Figure 1).

Questions were considered in relation to theme and examples are provided:

a. Affect-teacher theme (Question 7 "I feel my PE teacher makes my PE class fun for me.") 80% of respondents either agree or strongly agree that their teachers make PE fun for them.

b. Affect-curriculum theme (Question 14 "I feel the activities in my physical education class make class fun for me.") 78% of respondents either agree or strongly agree that the activities they do in PE make class fun for them.

c. Cognition-teacher theme (Question 11 "My physical education teacher makes my physical education class useful for me.") 73% of respondents either agree or strongly agree that their PE teacher makes class useful for them.

d. Cognition-curriculum theme (Question 6 "The activities I learn in my physical education class are useful to me.") 77% of respondents either agree or strongly agree that the activities they learn in PE class are useful for them (Figure 2).

Based on the two attitude components and two attitude sub-factors, the sixteen questionnaire items were categorised into four attitude constructs; cognitive aspects of PE, affective aspects of PE, PE activities and PE teachers. Each construct consists of eight questionnaire items as illustrated (Figure 3). Shared items between constructs were taken into account when interpreting relationships between attitude constructs; for example Question 1 'The activities I do in my physical education class make class unpleasant for me' fits both the affective and activities constructs.

	Strongly disagree - no way!	Disagree - no	Uncertain - maybe	Agree- yes	Strongly agree - definately!
The activities I do in my PE class make class unpleasant	48.5%	24.1%	15.7%	6.7%	5.1%
The activities I do in my PE class get me excited about coming to class	4.8%	8.2%	18.7%	29.6%	38.7%
My PE teacher makes PE class seem unimportant to me	48.7%	28.9%	14.1%	4.4%	3.8%
The activities I do in my PE class make my PE class no fun for me	54.6%	25.0%	12.0%	5.8%	2.5%
The activities I learn in my PE class are useless to me	55.7%	24.0%	11.3%	4.7%	4.3%
The activties I learn in my PE class are useful to me	4.9%	5.5%	11.9%	32.4%	45.3%
I feel my PE teachers makes my PE class fun for me	3.2%	4.4%	12.4%	30.1%	49.9%
The activities I learn in my PE class are important	2.9%	5.1%	17.0%	32.3%	42.8%
My PE teacher makes learning in my PE class unpleasant for me	54.8%	26.4%	12.6%	3.0%	3.2%
The activties I learn in my PE class seem unimportant to me	49.5%	25.3%	13.5%	7.7%	4.1%
My PE teachers makes my PE class useful for me	5.7%	6.3%	14.2%	35.3%	38.5%
My PE teachers makes my PE class useless for me	49.8%	26.2%	12.4%	6.5%	5.1%
My PE teacher gets me excited about PE	3.8%	6.6%	17.6%	29.6%	42.3%
I feel the activities in my PE class make class fun for me	3.2%	5.4%	12.6%	29.5%	49.4%
My PE teachers makes class no fun for me	57.4%	24.8%	10.5%	4.5%	2.8%
My PE teacher make class important to me	5.2%	5.8%	20.4%	25.5%	43.1%

Figure 1 Individual item response percentages. This table displays the collected responses for each questionnaire item. The percentages reveal an irregular distribution of data for all items, which is indicative of overall positive attitudes toward PE.

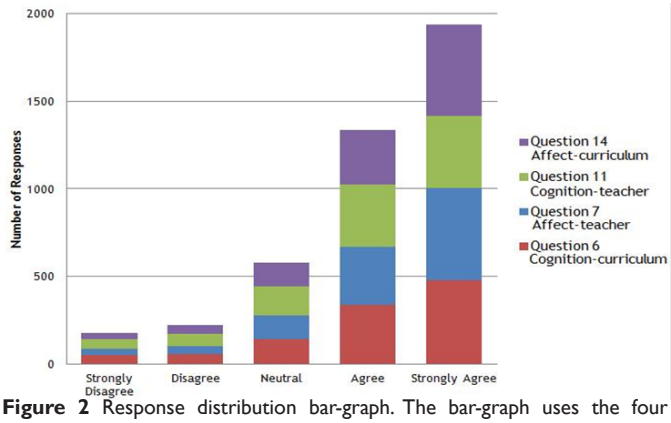

Figure 2 Response distribution bar-graph. The bar-graph uses the four example theme questions (discussed above) to demonstrate the skewed response distribution which was common to all questions; for negatively-worded questions the skewed distribution was reversed. The clear trend indicates overall positive attitudes toward PE.

Four summative attitude scores were calculated for each respondent within the four attitude constructs (Figure 4). The mode attitude scores were considered for comparison due to the irregular distribution of attitude scores; given the asymmetric distribution the statistical mean was not considered an accurate representation of the overall trend. The mode attitude score for each of the four constructs indicates a positive skew-most respondents have positive attitudes in all four constructs. Scores for the affective aspects of PE (mean=33, mode=40) are higher than those for the cognitive aspects of PE (mean=26, mode=28). Scores for the teacher construct (mode=31, mean=36) are higher than for those for the activities construct (mode=28, mean=32). Students' positive attitudes toward PE are related to their positive affect and cognition scores (Figure 5). The higher they rate the teacher the more positive their affect and cognition scores in PE. The Spearman's rank-order correlation coefficients showed statistically significant relationships between attitude scores. These correlations exceeded expectation due to the shared items between attitude constructs (Figure 3). The strongest correlation overall is between a positive attitude toward PE activities and a positive affective attitude (rs=.859). However this is not so strongly correlated with the other aspects; cognition (rs=.552) or teacher (rs=.576). Comparatively, a positive attitude toward the PE teacher is positively and strongly correlated with all other construct scores:

a. Attitude toward the PE teacher is positively correlated with affective aspects of PE (rs=.797) which suggests 64% of the variance in positive affective attitudes can be explained by the positive attitude toward teachers.

b. Attitude toward the PE teacher is positively correlated with cognitive aspects of PE (rs=.743), which explains 55% of the variance in positive cognitive attitudes.

c. Attitude toward the PE teacher is also slightly positively correlated with attitude toward PE activities (rs=.576), which explains 33% of the variance in positive attitudes toward PE activities.

	Cognitive aspects of PE (cognition)	Affective aspects of PE (affect)
PE activities (curriculum)	5. The activities I learn in my physical education class are useless to me. 6. The activities I learn in my physical education class are useful to me. 8. The activities I learn in my physical education class are important. 10. The activities I learn in my physical education class seem unimportant to me.	1. The activities I do in my physical education class make class unpleasant for me. 2. The activities I do in my physical education class get me excited about coming to class. 4. The activities I do in my physical education class make my physical education class no fun for me. 14. I feel the activities in my physical education class make class fun for me.
PE teachers (teacher)	3. My physical education teacher makes physical education class seem unimportant to me. 11. My physical education teacher makes my physical education class useful for me. 12. My physical education teacher makes learning in my physical education class useless for me. 16. My physical education teacher makes class important to me.	7. I feel my physical education teacher makes my physical education class fun for me. 9. My physical education teacher makes learning in my physical education class unpleasant for me. 13. My physical education teacher gets me excited about physical education. 15. My physical education teacher makes class no fun for me.

Figure 3 Attitude construct matrix of questionnaire items 1-16 for attitude scores. The matrix table illustrates the four attitude constructs used for the calculation of attitude scores.

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	Positive attitude to cognitive aspects of PE	Positive attitude to affective aspects of PE	Positive attitude to PE activities	Positive attitude to PE teachers
Mean	26	33	28	31
Mode	28	40	32	36
Minimum	9	8	14	8
Maximum	37	40	36	40

Figure 4 Attitude Score Statistics. This table displays statistical information about the summative scores calculated for each of the four attitude constructs.

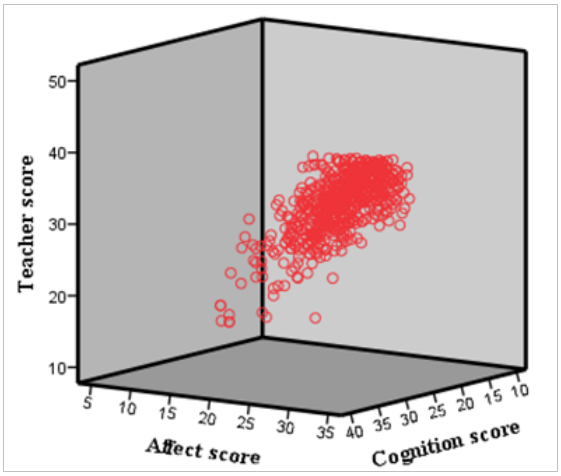

Figure 5 Relationship between Teacher, Affect and Cognition. This 3D scatterplot demonstrates the clear positive relationship in a plane between teacher, affect and cognition.

After establishing the significance of the affective aspects of PE (i.e. student enjoyment or the 'fun factor') analysis was also undertaken to examine the impacts of school contextual factors on student attitudes toward PE. Analysis of school location did not yield significant results, perhaps due to the lack of variation in the sample; 19 of the 21 schools which returned completed questionnaires were classified as Metropolitan according to the ACARA 'MySchool' website. Consideration of other contextual factors including student enrolments, teaching staff and various student population statistics did not illuminate any significant trends. School ICSEA value was the only contextual factor which returned statistically significant results.

Student reports of positive attitudes toward PE were compared, with consideration of their school ICSEA value. The Mann-Whitney U test showed a significant difference in responses from low SES (ICSEA <1000) and high SES (ICSEA >1001) primary school students on both selected items; students from low SES schools reported higher attitude scores for the affect-teacher construct (Mann-Whitney U=54220, p<.05) and for affect-curriculum (Mann-Whitney U=53705, p<.05). Students in schools with low ICSEA values had a higher mean rank (426.07) in relation to affect-teacher than their peers in schools with high ICSEA values (385.34). Students in schools with low ICSEA values also had a higher mean rank (414.44) in relation to affect-curriculum than their peers in schools with high ICSEA values (382.08). Although it did not reach a level of statistical significance to be considered conclusive, this finding does suggest that students in lower ICSEA value schools report more favourable attitudes toward PE than their peers in high ICSEA value schools.

		Positive attitude to cognitive aspects of PE	Positive attitude to affective aspects of PE	Positive attitude to PE activities	Positive attitude to PE teachers
Positive attitude to cognitive aspects of PE	Correlation Coefficient	1.000	.467	.552	.743
	Sig. (2-tailed)	.	<.001	<.001	<.001
Positive attitude to affective aspects of PE	Correlation Coefficient		1.000	.359	.797
	Sig. (2-tailed)		.	.000	<.001
Positive attitude to PE activities	Correlation Coefficient			1.000	.576
	Sig. (2-tailed)			.	<.001
Positive attitude to PE teachers	Correlation Coefficient				1.000
	Sig. (2-tailed)				.

Figure 6 Spearman's rank-order correlation coefficients for attitude scores. The table displays the Spearman's rank-order correlations which indicate the relationship between ranked variables; in this case, attitude scores.

Ranks

	ICSEA < or > 1000	Mean Rank	Sum of Ranks
I feel my PE teachers makes my PE class fun for me	ICSEA <1000	426.07	88196.00
	ICSEA>1001	385.34	225040.00
I feel the activities in my PE class make class fun for me	ICSEA <1000	414.44	84131.50
	ICSEA>1001	382.08	220458.50

Figure 7 Mann-Whitney U test ranks for ICSEA analysis. This table displays the mean ranks for low and high ICSEA value schools for Question 7 "I feel my PE teacher makes my PE class fun for me" and Question 14 "I feel the activities in my physical education class make class fun for me."

Test Statistics[a]

	I feel my PE teachers makes my PE class fun for me	I feel the activities in my PE class make class fun for me
Mann-Whitney U	54220.000	53705.500
Wilcoxon W	225040.000	220458.500
Z	-2.395	-1.907
Asymp. Sig. (2-tailed)	.017	.057

a. Grouping Variable: ICSEA < or > 1000

Figure 8 Mann-Whitney U test statistics for ICSEA analysis. This table displays the results of the Mann-Whitney U test in numerical form. Results of Wilcoxon's rank-sum test are also displayed, which is functionally the same as the Mann-Whitney U test.

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Discussion

This research which involved more than 1000 student responses from 21 NSW government schools yielded a number of far reaching results and clearly identified several important trends and issues associated with PE in NSW DEC primary schools. The following discussion has been divided into three sections in order to address the guiding research questions:

a) Are the attitudes held by NSW Stage 3 primary students toward PE generally positive or negative?

Overwhelmingly, the findings demonstrated positive attitudes towards PE among NSW DEC primary students. Despite an assumption of negativity within the Australian PE domain the study clearly indicated a positive trend. This is encouraging as it has been proven that students' attitudes influence future participation in physical activity.[9,17,32,39] "Students with positive attitudes toward physical education are more likely to participate in physical activity outside of school" [40] which is an essential feature of healthy, active lifestyles.

When the two components of attitude were assessed individually, the study found higher scores for the affect component of attitude (enjoyment) than for the cognitive component (perceived usefulness). This suggests primary students are more interested in having fun in PE than whether the subject is useful for them. Extensive research evidence supports the significance of student enjoyment in the development of positive attitudes toward PE. Rikard & Banville[25] emphasise the importance of the "fun factor" in PE while Subramaniam & Silverman[14] report higher attitude scores for enjoyment than for perceived usefulness in their investigation of secondary students' attitudes toward PE. General education researchers[41,42] have "hypothesised that enjoyment, as an affective aspect of engagement, preceded behavioural and cognitive engagement"[42] in terms of school engagement, suggesting that developmentally students in primary schools are more likely to be motivated by enjoyment than by perceived usefulness. The findings of this study reflect this idea more so than studies of secondary students. That student attitudes toward PE are generally positive also challenges the assumed negative impact of high-stakes testing on PE in schools.[36]

b) Do attitude sub-factors of teacher or curriculum have more influence on student attitudes toward PE?

The study also considered two attitude sub-factors for PE, teacher and curriculum, which were examined to determine respective influence over student attitudes. The results suggested superiority of the teacher attitude sub-factor over curriculum; that is the PE teacher can be more powerful in motivating positive attitudes toward PE in primary school students than curriculum activities. These findings were unanticipated based on the existing PE literature as they challenge the "perceived unimportance of the physical education teacher to the children's level of interest"[16] discussed in previous studies investigating the attitudes of secondary students toward PE. Comparatively Luke & Sinclair[30] identified "the teacher as a determinant of negative attitudes" but this study has found evidence to the contrary. Such conflict may be explained to an extent by the younger demographic of the respondents since autonomy and the desire for independence increases as children mature.[43] If it is the case that primary students' attitudes toward PE are indeed moderated by their PE teachers, perhaps professional development should focus less on pedagogy and more on developing teachers as role models and effective communicators who foster healthy relationships with students and thus encourage physical activity both at school and beyond.

c) Do school contextual factors such as location or ICSEA value influence student attitudes toward PE?

Inferential analyses revealed the potential impact of specific school contextual factors such as ICSEA value. The Mann-Whitney U test showed some difference in responses; students from schools with low ICSEA (<1000) have slightly higher attitudinal scores than their peers at schools with high ICSEA (>1000) values, however the differences in scores were only marginally significant. This finding suggests socioeconomic status need not be a barrier for the delivery of quality PE in primary schools which students enjoy, and therefore warrants investigation in future research.

Geographical location could not be interpreted as a statistically significant influencing factor as, from the 21 schools who returned questionnaires before the specified deadline 19 were classified as 'Municipal' according to ACARA while the remaining 2 schools were both 'Provincial.' All participating schools were located in NSW. Further research should therefore endeavour to secure a more representative sample for investigation and include schools across Australia from all four location categories; Municipal, Provincial, Remote and Very Remote. Other contextual factors including student enrolments, number of teaching staff and various student population statistics did not return statistically significant results. However, the overall findings of this study provide insight into the attitudes of primary students toward PE in NSW DEC primary schools which differ from those identified in past research investigating the attitudes of secondary students toward PE. Several limitations of this study are apparent and provide direction for future research. The sample for this study included only NSW DEC primary schools; an investigation of all school-types (government and non-government) across all states and territories in Australia is necessary in order to give voice to all Australian primary students. Future investigations must also take into account the impact of other myriad variables on student attitudes towards PE. These include, but are by no means limited to, age (in years), gender, social class, ethnicity, skill level in PE, parental involvement and previous school experiences. It would be of particular interest to conduct ongoing research with the same cohort to investigate whether attitudes formed in primary school are maintained in high school and beyond. Finally it would be ideal if the research could also incorporate qualitative data to provide some explanation of the quantitative measurements;[33] for example future research may involve focus-group interviews to illuminate mediators of student attitude in more detail.

Conclusion

The overall aim of this study was to produce a comparable analysis of student attitudes toward PE in order to rectify the neglect of primary students' voices in the literature, both in Australia and internationally. By investigating the attitudes held by Stage 3 students in NSW DEC primary schools toward PE the study achieved its aim and addressed the following questions:

a. Are the attitudes held by NSW Stage 3 primary students toward PE generally positive or negative?

b. Do attitude sub-factors of teacher or curriculum have more influence on student attitudes toward PE?

c. Do school contextual factors such as location or ICSEA value influence student attitudes toward PE?

The results of this pioneering project clearly show that student attitudes toward PE in NSW DEC primary schools are generally positive. Higher attitude scores were apparent for the affect component than for the cognition component; that is primary students are more interested in having fun in PE than whether the subject is useful for them. Secondly, student attitude scores related to teacher were higher than for those related to PE activities, which suggests superiority of the teacher attitude sub-factor over curriculum. Finally, the study produced evidence to suggest students from low ICSEA value schools have more positive attitudes toward PE than their peers in high ICSEA value schools, a theme which warrants further research. In transferring Phillips & Silverman's [1] questionnaire and analysis methods to an Australian context the research has yielded similarly "reliable and valid scores to examine fourth and fifth grade students' attitudes toward physical education" which will help educators to develop valuable and enjoyable PE programs based on the students' evaluations. In doing so, the study has addressed a remarkable neglect of any student voice in the existing PE literature despite a wealth of studies involving other less important stakeholders. Despite enormous upheaval in Australian education with the development of the National Curriculum and an increasing emphasis on high-stakes testing such as NAPLAN, until now there has been no attempt to evaluate the impacts of such developments on the very students such changes are designed to benefit. Indeed the study has presented a body of findings with scope for extensive future research involving more varied samples and considering a wider range of contextual variables. Student attitudes toward PE in NSW DEC primary schools are generally positive, with an emphasis on enjoyment over usefulness and teacher over curriculum activities. Myriad factors influence student learning, yet Australian PE researchers have not deemed student attitudes towards PE significant despite evidence in the international literature. In light of contemporary health concerns related to youth obesity, physical inactivity and mental health ,[13] maintenance of the positive attitudes identified in this study should be prioritised in Australian education since positive attitudes toward PE motivate physical activity outside school and foster healthy, active lifestyles.

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Conflicts of interest

The author declares that there is no conflict of interest.

References

1. Phillips SR, Silverman S. Development of an instrument to assess fourth and fifth grade students' attitudes toward physical education. *Measurement in Physical Education and Exercise Science.* 2012;16(4):316–327.
2. Chedzoy S, Burden R. Primary school children's reflections on physical education lessons: An attributional analysis and possible implications for teacher action. *Thinking Skills and Creativity.* 2009;4(3):185–193.
3. Light R. *Game Sense: Pedagogy for performance, participation and enjoyment*. London: Routledge; 2012.
4. Makela K, Hirvensalo M, Laakso L, et al. Physical education teachers in motion: An account of attrition and area transfer. *Physical Education and Sport Pedagogy.* 2014;19(4):418–435.
5. Morgan PJ, Hansen V. Physical education in primary schools: Classroom teachers' perceptions of benefits. *Health Education Journal*. 2008;67(3):196–207.
6. Wallhead TL, Buckworth J. The role of physical education in the promotion of youth physical activity. *ERIC*. 2004;56(3):285–301.
7. Colquitt G, Walker A, Langdon JL, et al.. Exploring student attitudes toward physical education and implications for policy. *Sport SPA*. 2008;9(2):5–12.
8. Biddle SJH, Mutrie N. *Psychology of physical activity determinants, well being and interventions*. London: Routledge; 2001.
9. Carlson TB. We hate gym: Student alienation from physical education. *Journal of Teaching in Physical Education.* 1995;14(4): 467–477.
10. Ennis CD. Students' experiences in sport-based physical education: [More than] apologies are necessary. *Quest.* 1996;48(4):453–456.
11. Portman PA. Who is having fun in physical education classes? Experiences of sixth grade students in elementary and middle schools. *Journal of Teaching in Physical Education.* 1995;14:445–453.
12. Robinson DW. An attributional analysis of student demoralization in physical education settings. *Quest.* 1990;42(1):27–39.
13. Solmon MA, Lee AM. Research on social issues in elementary school physical education. *Elementary School Journal*. 1996;3(3):229–239.
14. Subramaniam PR, Silverman S. Middle school students' attitudes toward physical Education. *Teaching and Teacher Education*. 2007;23(5):602–611.
15. Dismore H, Bailey R. Fun and enjoyment in physical education: Young people's attitudes. *Research Papers in Education.* 2011;26(4):499–516.
16. Shropshire J, Carroll B, Yim S. Primary school children's attitudes to physical education: Gender differences. *European Journal of Physical Education.* 1997;2(1):23–38.
17. Subramaniam PR, Silverman S. Validation of scores from an instrument assessing student attitude toward physical education. *Measurement in Physical Education and Exercise Science.* 2000;4(1):29–43.
18. Wallhead TL, Buckworth J. The role of physical education in the promotion of youth physical activity. *ERIC*. 2004;56(3):285–301.
19. Boot DN, Beile P. Scholars before researchers: On the centrality of the dissertation literature review in research preparation, *Educational Researcher.* 2005;34(6):3–15.
20. Cox M, Schofield G, Kolt GS. Responsibility for children's physical activity: Parental, child and teacher perspectives. *Journal of Science and Medicine in Sport.* 2010;13(1):46–52.
21. Morgan P. Teacher perceptions of physical education in the primary school: Attitudes, values and curriculum preferences. *Physical Educator*. 2008;65(1):46–56.
22. Morgan PJ, Hansen V. Recommendations to improve primary school physical education: Classroom teachers' perspective. *The Journal of Educational Research.* 2007;101(2):99–112.
23. Nathan N, Wolfenden L, Morgan PJ. Pre-service primary school teachers' experiences of physical education. *Australian and New Zealand Journal of Public Health.* 2013;37(3):294–296.

24. Bibik J, Goodwin, Stephen C, et al. High school students' attitudes toward physical education in Delaware. *Physical Educator*. (2007);64(4):192–204.

25. Rikard GL, Banville D. High school student attitudes about physical education. *Sport, Education and Society.* 2006;11(4):385–400.

26. Portman PA. Who is having fun in physical education classes? Experiences of sixth grade students in elementary and middle schools. *Journal of Teaching in Physical Education.* 1995;14:445–453.

27. Fishbein M, Azjen Belief. Attitude intention, and behavior: An introduction to theory and research. Reading: *Addison-Wesley. I.* 1975.

28. Patterson P, Faucette N. Children's attitudes toward physical activity in classes taught by specialist versus non-specialist P.E. teachers. *Journal of Teaching in Physical Education.* 1990;9(4):324–331.

29. Van-Wersch A, Trew K, Turner I. Post-primary school pupil's interest in physical education: Age and gender differences. *British Journal of Educational Psychology.* 1992;62(1):56–72.

30. Luke MD, Sinclair GD. Gender differences in adolescents' attitudes toward school physical education. *Journal of Teaching in Physical Education.* 1991;11(1):31–46.

31. Grant BC, Ballard KD, Gynn TL. Student behavior in physical education lessons: A comparison among student achievement groups. *Journal of Educational Research*. 1989;82:216–226.

32. Silverman S, Subramaniam PR. Student attitude toward physical education and physical activity: A review of measurement issues and outcomes. *Journal of Teaching in Physical Education*. 1999;19(1):97–125.

33. Gratton C, Jones I. *Research methods for sports studies*. Abingdon: Routledge; 2010.

34. Birtwistle GE, Brodie DA. Children's attitudes towards activity and perceptions of physical education. *Health Education Research*. 1991;6(4):465–478.

35. Graham G. Children's and adult's perceptions of elementary school physical education. *The Elementary School Journal*. 2008;108(3):241–249.

36. Polesel J, Dulfer N, Turnbull M. *The experience of education: The impacts of high stakes testing on school students and their families*. Sydney: The Whitlam Institute; 2012.

37. Hicks MK, Wiggins MS, Crist RW. Sex differences in grade three students' attitudes toward physical activity. *Perceptual and Motor Skills*. 2001;93(1):97–102.

38. Field A. *Discovering statistics using SPSS*. London: SAGE Publications; 2005

39. Zeng HZ, Hipscher M, Leung RW. Attitudes of high school students toward physical education and their sport activity preferences. *Journal of Social Sciences*. 2011;7(4):529–537.

40. Mercier K, Silverman S. Validation of an instrument to measure high school students' attitudes toward fitness testing. *Research Quarterly for Exercise and Sport.* 2015;85(1):81–89.

41. Fredericks J, Blumenfeld P, Paris A. School engagement: Potential of the concept, state of the evidence. *Review of Educational Research.* 2004;74(1):59–109.

42. Abbott-Chapman J, Martin K, Ollington N, et al. The longitudinal association of childhood school engagement with adult educational and occupational achievement: Findings from an Australian national study. *British Educational Research Journal.* 2014;40(1):102–120.

43. Eccles JS, Buchanan CM, Flanagan C, et al. Control versus autonomy during early adolescence. *Journal of Social Issues.* 1991;47(4):53–68.