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ATTITUDES OF GIRLS AND BOYS TOWARDS
COMPULSORY PHYSICAL EDUCATION IN A
SELECTED GOVERNMENT SECONDARY SCHOOL

By

MILEVA PIROT, B.Arts (Education)

A thesis submitted in partial
fulfilment of the requirements
for the award of
Bachelor of Education (with Honours)
at the Faculty of Education,
Edith Cowan University

NOVEMBER 1993

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

CANDIDATE'S DECLARATION

I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

SIGNATURE:

DATE:6:11:93.....

DEDICATION

To my Grandfather

Frederick Arthur Lewin

who passed away during the course of my study

ABSTRACT

This study investigated the attitudes of 175 lower secondary school students towards compulsory physical education and how these attitudes differed by year level and sex.

The students were selected from a metropolitan government secondary school. A modified version of the Wear Attitude Inventory was used as the research instrument. A two-way ANOVA was applied to analyse the data for the following sub-groups: Year 8 females, Year 8 males, Year 9 females, Year 9 males, Year 10 females, and Year 10 males. The ANOVA compared the mean scores on the Wear Attitude Inventory for each sub-group.

The results indicated that although both girls and boys held positive attitudes towards compulsory physical education, boys' attitudes were more positive than girls. Also, as the year level increased, attitudes towards compulsory physical education were less positive for both boys and girls collectively. However, the data revealed that girls' attitudes towards compulsory physical education tended to become less positive as the year level increased with the reverse being true for boys. That is, boys' attitudes towards physical education tended to become more positive as the year level increased, but girls attitudes did not.

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CHAPTER 1
INTRODUCTION

Statement of the Problem

Attitudes held by students towards school subjects vary due to factors within the teaching programme. Research on student attitudes usually requires them to respond unfavourably or favourably to concrete or abstract aspects of the subject. Attitudes often vary across the different subject areas and extensive research (Barrell & Holt, 1982; Campbell, 1986 a; Earl & Stennett, 1983), has been documented in relation to student attitudes in the discipline of physical education.

During the teaching and learning process, physical education teachers are sometimes unaware or fail to take cognizance of the affective domain of the required General Physical Education units in the Unit Curriculum of lower secondary schools in Western Australia. Student attitudes towards physical education often do not form part of the formal assessment of physical education. This failure to monitor attitudes has several implications. Student attitudes towards physical education could either degenerate or improve during their years at school without teachers being aware of such changes. This could depend on factors such as a

student's sporting experience and skill level, parental attitudes towards sport, type of grouping for classes, physical education teacher qualities, subject matter, and the perceived relevance of physical education to later life.

Overseas studies (O'Brien, 1987; Prince, 1969; William & O'Neill, 1983), have shown that girls and boys hold different attitudes towards physical education. Girls' attitudes towards physical education become less positive as their age increases, whereas boys' attitudes tend to improve as they mature. This study aimed to discover if such findings are representative of physical education students in a selected Western Australian government secondary school.

Significance of the Problem

Much of the previous literature pertaining to attitudes in physical education has been based on opinion and experience rather than factual research (Boutiller & San Giovanni, 1983). This study is the first documented research of its kind in Australia, and in particular Western Australia, which pays particular reference in establishing whether there are differences towards physical education by year level and sex. If differences in male and female attitudes are established in each of

the year groups, then any differences identified might then be the basis for a teacher's further investigation. The research also has several important implications for physical educators, as we have little knowledge about whether physical education, as a subject, engenders positive or negative attitudes in girls and boys.

Once teachers have a greater understanding of student attitudes, they may be in a better position to induce positive attitudes or to eliminate negative attitudes in their physical education programme. The need for such a study has led to the formulation of the following research questions.

Research Questions

PRIMARY QUESTION:

Do attitudes towards compulsory physical education differ between students in Years 8, 9, and 10?

SUBSIDIARY QUESTIONS:

- (1) Do student attitudes towards compulsory physical education differ by sex?
- (2) Do student attitudes towards compulsory physical education differ by year level?
- (3) Do student attitudes towards compulsory physical education differ by sex and year level?

CHAPTER 2

LITERATURE REVIEW

The literature review focuses on the nature of attitudes and definitions, followed by a review of student attitudes towards physical education by year level and sex and the reasons students give for those attitudes. Finally, instruments used to measure attitudes in physical education are examined, with a particular focus on the Wear Attitude Inventory.

Attitudes

The term "attitude" has been part of the psychological literature for many years. Despite its relatively long history, consensus on the definition of attitude has been difficult to obtain. It has been defined as "a neuropsychic state of readiness for mental and physical activity" (Allport, 1935, p.32) and as a "feeling or mood relative to action" (Scott, 1960, p.308). In an attempt to reflect contemporary writing, Kenyon (1968) described attitude as "a latent or nonobservable, complex, but relatively stable behavioural disposition reflecting both direction and intensity of feeling toward a particular object, whether it be concrete or abstract" (p.568).

Baker (1960) described attitude simplistically as "the predisposition of the individual to evaluate some symbol or object or aspect of his world in a favourable or

unfavourable manner" (p.268). From this, Icek (1988) formulated a contemporary definition. An attitude is "a disposition to respond favourably or unfavourably to an object, person, institution or event" (p.4).

Icek (1988) shared the view of Kenyon (1968), that "attitudes are latent, hypothetical characteristics that can only be inferred from external observable cues" (p.2). Given the nature of this construct, the responses must reflect positive or negative evaluations of the attitude object as "attitude is a hypothetical construct that, being inaccessible to direct observation, must be inferred from measurable responses" (p.4). Contemporary social psychologists seem to agree that the characteristic attribute of attitude is its evaluative nature and that the observable responses are directed at a given object or target. Fox and Biddle (1988), and Icek (1988), agreed with Kenyon (1968) that to simplify matters, it is useful to categorise attitude-relevant responses into various sub-groups. "Attitudes carry several components, the most widely accepted being 'A' (affect or feelings), 'B' (behavioural or intent), and 'C' (cognitive or belief)" (Fox & Biddle, 1988, p.107).

Physical education objectives were utilised by Wear (1951) and Kenyon (1968) to establish categories of items in instruments used to measure attitudes. Classifying attitudes into these components assists in identifying areas which may be most susceptible to modification through our teaching programmes. "The fact that

attitudes are a result of social experiences also supports the notion that they can be modified" (Fox & Biddle, 1988, p.108). Therefore we may assume that physical education has a potential for influencing student attitudes both positively and negatively.

It is recognised through related literature as well as personal experience, that attitudes are frequently in flux and "if they are not improving, they are apt to deteriorate before long" (Scott, 1960, p.308). This should give physical educators enough reason to warrant the serious investigation of attitudes in the realm of physical education.

Student Attitudes Towards Physical Education By Year Level and Sex

So what does the literature tell us about student attitudes towards physical education? Is there a difference in attitudes between students based on year level and sex? Previous overseas research (Baker, 1969; Prince, 1969; Stricklin, 1973), has shown that there are sometimes significant differences between student attitudes when comparing these two variables.

Boutilier and San Giovanni (1983) concluded that "the traditional polarisation of sex roles has produced in our society two different kinds of human beings - women and men - who are expected to play different roles, hold different attitudes, espouse different values, and express different feelings" (p.100).

By the time students reach secondary school, they possess definite attitudes towards physical education and physical activity. Baker (1969) in the United States of America found that there was a decline in the attitudes of Year 10 girls towards physical education when compared with their attitudes in Year 8. Oldenhove (1987) and Jobling and Macdonald (1987) in Australia suggested that in their experience there was a decrease in the degree of positiveness as the grade increased and that the longer female students stay in school, the less interest they show in physical education. However, their opinions were not based on research. Stricklin (1973), using a junior high school sample in the United States of America, found the reverse to be true. Prince (1969) reported significantly lower attitude scores for Year 12 boys than were found for Year 9 boys in a Canadian study. He also reported that Year 12 girls' attitudes were slightly higher than Year 9 girls. From this we can conclude that it is difficult to predict whether a selected sample will show significant differences in attitude towards physical education according to year level and sex, and this is exacerbated because of the differences in research from country to country.

Instruments Used to Measure Attitudes In Physical Education

A number of instruments have been constructed to assess attitudes in the area of physical education, sport and physical activity.

In 1968, McPherson and Yuhasz developed an attitude inventory based on a Likert-type scale. Subjects were asked to respond to 50 statements. The scores on each item were summed and the total score was a measure of the intensity of the subject's attitude toward exercise and physical activity before an exercise programme, and whether changes in attitudes occurred after a 24 week period. Significant positive changes in attitude for the 50 subjects occurred as a result of the exercise programme.

Kenyon (1968) developed an inventory to assess attitudes toward physical activity as opposed to physical education. Kenyon utilised a conceptual multidimensional model of physical activity. The model was developed on the assumption that "physical activity can be reduced to more specific or meaningful components and that a meaningful basis for such a procedure was the 'perceived instrumentality' of each class of physical activity" (p.568).

Six subdomains were identified; namely a social need, a need for vertigo, an ascetic need, an aesthetic need, a need for health and fitness, and a cathartic need. Statements were written which were thought to be representative of each subdomain. This particular inventory utilised a Likert format.

Alderman (1970) used Kenyon's inventory to examine the attitudes of female and male college athletes toward

physical activity. Results indicated that the male and female athletes held similar attitudes. Barrell and Holt (1982) used the same inventory to measure changes in attitude toward physical activity over a three year period for specialist college students of physical education. No significant differences emerged.

Work by Simon and Smoll (1974) has allowed the examination of attitudes due to the development of a psychometrically sound inventory for the assessment of children's attitudes toward physical activity (CATPA). The inventory was derived from Kenyon's (1968). Paterson and Faucette (1990) administered the inventory to 414 fourth and fifth grade children from four Southern Californian schools. The purpose of the study was to determine if there were differences in attitudes toward physical activity for children in classes taught by specialists versus those taught by nonspecialists. The findings implied that the attitudes towards physical activity were similar for the children in this study regardless of the type of teacher.

An attitude index consisting of 16 items was developed by Corbin, Dowell, Lindsey and Tolson (1981) to assess general attitudes toward physical activity. Slava, Laurie and Corbin (1984) used the index to evaluate the attitudes, knowledge and activity behaviours of college graduates who completed a lecture - laboratory concepts course in physical education. There was a significant improvement in the subjects' attitudes after completing

the course, indicating a positive attitude toward physical education.

The Kneer Attitude Inventory was used by Toon and Gench (1990) to assess whether there were differences in attitude towards physical education among handicapped and nonhandicapped students participating in the same classes. Also of interest was whether the sex of participants affected attitude towards physical education. The Kneer Attitude Inventory items are designed to measure attitudes toward physical education, including specific aspects of facilities, programmes and leadership. A 5-point Likert-type scale with responses ranging from "strongly agree" to "strongly disagree" was adopted for this instrument. Nonhandicapped students had significantly more positive attitudes than did handicapped students. No significant differences were observed between the sexes.

If one had to select a single weakness of the attitude research conducted in physical education, it would be the oversimplistic approach that has been taken. Research in this area has used generalised attitude objects, for example, physical activity, sport and physical education. There is a need to determine how these general terms are differentiated by individuals.

The Wear Attitude Inventory

Wear (1951) developed an instrument which enabled researchers at the time to make reliable and valid assessments of the direction and intensity of individual and group attitudes toward physical education. The 289 statements were intended to tap attitudes toward the commonly accepted objectives of physical education: namely, social, physical, emotional and general, which included statements on physical education as a school subject. The scores were used as indicators of a general attitude toward physical education. The items were evaluated in the form of a Likert-type scale and subjects were asked to respond to each statement by selecting one of five choices: strongly agree, agree, undecided, disagree, strongly disagree. "It is believed that the inventory will place individuals in rank order regarding intensity of attitude toward physical education" (Wear, 1951, p.117). The original list of items was then reduced to 120 statements from which a short form of 40 statements was developed. Later two equivalent forms were developed from the same 120 statements. The two forms contained 30 statements each and will be referred to as Form A and Form B. Many North American researchers (Campbell, 1968b; Dayries & DeVrye, 1974; Young, 1970), have used the Wear Attitude Inventory, both in its short form and equivalent forms.

Vincent (1967) used the inventory to determine the attitudes of college women toward physical education and to find the relationship between their expressed attitudes and success in a variety of physical education activities. No significant correlations were found.

The Wear Attitude Inventory was administered to one class of seventh grade boys, eighth grade boys and ninth grade boys by Campbell (1968a). The results revealed that eighth grade boys had a higher median score than either the seventh or ninth grade boys. Most importantly, "the item analysis of the inventory statements suggests that the items discriminate between levels of attitude at each of the three school grade levels and across the four categories" (p.893). It was assumed that the instrument was effective for comparative evaluation of attitude development which would extend across the various grade levels.

Later, Campbell (1968b) conducted a study which required 199 college males to complete the inventory. The subjects were classified according to the size of the high school attended, the college of matriculation, and the physical education class in which they were currently enrolled. No significant variations in attitude scores towards physical education were found within the subgroups, however a significant difference in attitude scores was found between the responses to the four categories of items on the inventory. Campbell (1969)

used Form A of the Wear Attitude Inventory, together with the 50 yard dash and the 600 yard run-walk, to establish a relationship between the scores on the inventory and selected physical fitness scores. The conclusion drawn was that no significant relationship existed between attitudes towards physical education as measured by this attitude inventory and the ability to perform the selected physical fitness items.

A study involving 168 students was conducted by Brumbach (1968). The students' attitudes towards physical education were determined by the use of short form A of the Wear Attitude Inventory, after experiencing a special conditioning class to improve their self-esteem and confidence. The pretest average for the class was 119.0, and the mean score at the end of the term was 129.7, showing an improvement in attitude towards physical education ($p < .01$).

Young (1970) performed a study to determine whether differences existed between socioeconomic groups with reference to physical fitness, personal and social adjustment, and attitude toward physical education. Results showed that students in all socioeconomic groups, who are well adjusted both personally and socially, had a positive attitude to physical education.

A study comparing the attitudes towards physical education of 42 junior and 42 senior physical education majors and their parents was conducted by Dayries and

DeVrye (1974). All subjects completed Form A of the Wear Attitude Inventory. Results showed that "both groups had very positive attitudes, however, there were no significant differences between groups in this study" (p.918). Further analysis showed that as a group, parents did not appear to influence strongly those attitudes held by students.

Keogh (1962) used the inventory to determine if students differed in their attitudes toward general benefits or values of physical education, and if women and men differed in this respect, while Williams and O'Neill (1983) looked at sex differences across year levels using high school students in New Zealand. Keogh (1962) found that no significant differences between sex emerged, whilst Williams and O'Neill's findings (1983) indicated that the younger pupils had more favourable attitudes towards physical education than did the older pupils and that a detailed analysis of the items comprising the inventory led to a number of specific items that distinguished males from females. For example, where the statement refers to physical education being made more important in the school curriculum, few females strongly agreed, whereas a much higher proportion strongly disagreed. Other items differentiating responses by sex included those emphasising the social benefits of physical education, such as belonging to a group, which females held to be more important than males.

The Wear Attitude Inventory has been used regularly for many years, in which time physical educators have found it to be a reliable and valid instrument for measuring student attitudes towards physical education.

Reasons Students Give For Their Attitudes Towards Physical Education

The literature has indicated that there are many reasons which account for the attitudes of students towards physical education. The general findings from the literature show that coeducational classes, physical fitness and activity, the physical education teacher, physical education modules and the affective outcomes of physical education are strong determinants in instilling positive or negative attitudes within students towards physical education as a subject. Table 1 gives a synthesis of the reasons given in the literature as to why male and female students hold negative or positive attitudes towards physical education. This study will determine where differences do occur in student attitudes towards physical education by sex and year level.

TABLE 1

A SYNTHESIS OF THE FACTORS AFFECTING STUDENT ATTITUDES TOWARDS PHYSICAL EDUCATION

| | GIRLS | BOYS | GIRLS & BOYS |
|-------------------|--|---|---|
| Negative Attitude | <p><u>Co-educational Classes</u></p> <ol style="list-style-type: none"> Boys tend to dominate the lesson especially in those sports requiring strength, stamina and speed. As a result, girls experience less success and enjoyment. Boys are often chosen as class leaders, demonstrators, role models and equipment leaders, and girls are often left out or given less attention from the teacher (Australian Council for Health, Physical Education and Recreation (ACHPER), 1980; Harrison & Blakemore 1983; Heys, 1989). Female students find there is too much emphasis on winning and competition when participating with boys. There is not enough attention paid to sports - related movement skills, general fitness and the fun of involvement (Arbogast, 1978; Dyer, 1988; Earl & Stennett, 1983; The Working Group on Women In Sport, 1985). | <ol style="list-style-type: none"> Boys feel restrained by the lower skill level of the girls. Boys have a more favourable attitude towards coeducational physical education than girls (Heys, 1989). | |
| Positive Attitude | | Boys see coeducational physical education as a social and affiliative experience (Monagan, 1983). | Girls and boys find coeducational classes more enjoyable than single sex classes (Macdonald, 1989). |

| | GIRLS | BOYS | GIRLS & BOYS |
|-------------------|---|--|---|
| Negative Attitude | <p><u>Physical Fitness and Activity</u> Females do not see physical fitness as important and thus physical education as unimportant (O'Brien, 1987).</p> | | |
| Positive Attitude | | <p>Boys see physical fitness as very important and thus physical education as important (O'Brien, 1987).</p> | <p>Girls and boys rank physical fitness as the most important component in the physical education curriculum and think it is incorporated well in their physical education programme (Baker et al, 1982; Gillam, 1985).</p> |
| Negative Attitude | <p><u>Physical Education Teacher</u> 1. Girls think that male teachers are more sympathetic or more attentive to boys than to girls and tend to keep girls at a distance. 2. Girls find that male physical education teachers tend to emphasize skilled performance and formal, competitive training methods (Vertinsky, 1983).</p> | | |
| Positive Attitude | <p>Girls prefer to be taught by female teachers as they place emphasis on social interaction, friendly participation and less dominant teaching approaches. Girls also find female teachers to be more helpful, understanding and more readily consulted about personal problems (Stanworth, 1981; Vertinsky, 1983).</p> | <p>Boys prefer to be taught by male teachers because of the emphasis on skilled performance, and competitive training (Vertinsky, 1983).</p> | <p>Boys and girls cite the teacher as a significant determinant for positive attitudes (Figley, 1985; Simon & Smoll, 1974).</p> |

| | GIRLS | BOYS | GIRLS & BOYS |
|-------------------|--|--|--|
| Negative Attitude | <u>Physical Education Modules</u> Girls would least like to do the following sports: track and field, lawn bowls, weight training, Australian football and soccer (Browne, 1991). | Boys would least like to do the following sports: dance, aerobics, lawn bowls, netball and track and field (Browne, 1991). | |
| Positive Attitude | Girls would prefer to do such sports as aerobics, netball, skin diving/snorkelling, dance and swimming (Browne, 1991). | Boys would prefer to do such sports as wave skiing, soccer, badminton, basketball and tennis (Browne, 1991). | |
| Positive Attitude | <u>Affective Outcomes of Physical Education</u> | | Physical education teaches co-operation, leadership, friendship and sportsmanship. Physical education is fun. Physical education teaches students to lead a healthy lifestyle (Arbogast, 1978; Avery & Lumpkin, 1987; Soudan & Everett, 1981). |
| Negative Attitude | <u>Physical Education as a School Subject</u> | | As a subject, physical education has a low subject status and no significant relationship to the world of work. Physical education is a "bludge" subject (Arbogast, 1978; Baker, Campbell, Paterson & Wideman, 1982; Pedler, 1988; Scraton, 1990). |

A Conceptual Framework

From the literature, there appear to be a number of influencing factors (independent variables) which affect the reasons why students hold particular attitudes (dependent variables) towards physical education. Collectively, the influencing factors will determine whether a student has a negative or positive attitude toward physical education. The reasons derived from the literature indicate possible influences on student attitudes by sex and year level. However, this study does not explore these possible influences further. Rather it takes the first step towards establishing whether there are differences in student attitudes by sex and year level. Figure 1 indicates factors influencing student attitudes towards physical education, which derived from the literature review.

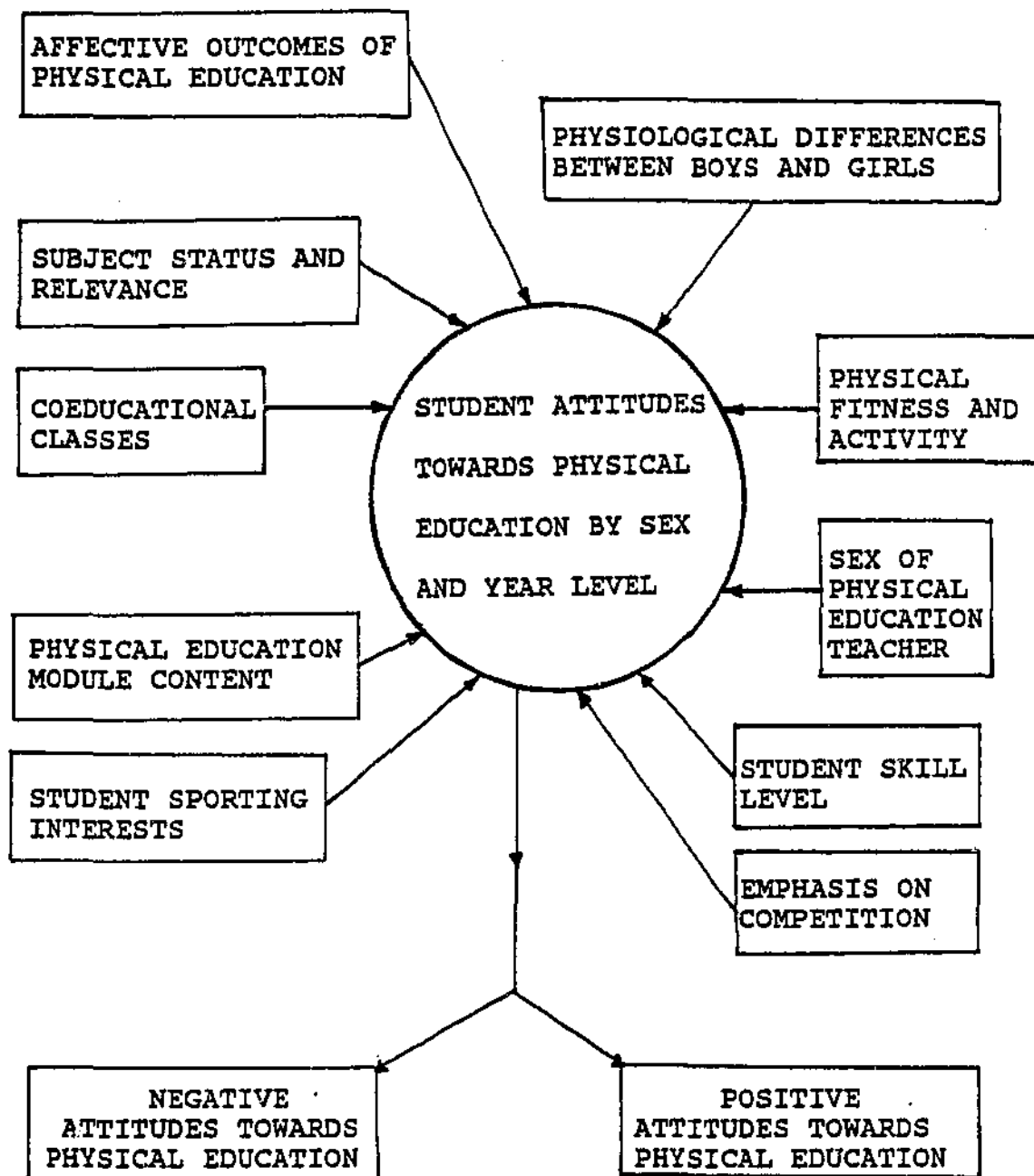


Figure 1: A Conceptual Framework Indicating Factors Influencing Attitudes Towards Physical Education.

CHAPTER 3

METHODOLOGY

This chapter has been organised under the following headings:

Design

Subjects and Subject Selection

Instrumentation

Procedures

Data Collection

Limitations of the Study

Each section describes the methods employed and reasons why these methods were appropriate to the study.

Design

This study is descriptive in nature and identifies a relationship between the variables of age and sex with the more complex variable of attitude in order to establish the existing state of student attitudes towards physical education.

Subjects and Subject Selection

The study required subjects to be selected from lower school coeducational physical education classes in a

government secondary school. The students were enrolled in General Physical Education, which is a course comprising compulsory units taken by all lower school students. It consists of six stages which are based on a developmental model in which skills progress from the simple to the more complex. Modules (areas of activity making up the units) are arranged so as to facilitate sequential development of skills across the six stages and cover a broad range of sports including areas of aquatics, gymnastics, dance and games. Students, ranging from 12 years to 15 years, completed the modified Wear Attitude Inventory. Cluster sampling was used to select two classes randomly from each year level. That is, two physical education classes were randomly selected from seven Year 8 classes, two from six Year 9 classes, and two from five Year 10 classes. It was assumed that each class consisted of about 30 students with approximately an equal number of girls and boys in each class. Thus approximately 30 girls and 30 boys were selected from each of Years 8, 9 and 10 producing a total of 86 girls and 89 boys. These subgroups will be referred to as Year 8 girls, Year 8 boys, Year 9 girls, Year 9 boys, Year 10 girls, and Year 10 boys.

Instrumentation

A modified version of the short form of the Wear Attitude Inventory was used as the research instrument (Appendix A). All 40 items on the inventory were positive to

reduce the possibility of confusion for lower school students when having to respond to both negative and positive items.

The level of difficulty of the vocabulary involved in the original inventory was unsuitable for use with high school students, as it had been developed for college students. The statements were modified slightly by removing the North American orientation and modernising some of the items because of the contemporary time frame in which the inventory was used. An example of these modifications can be seen in item 37. The original statement reads "Physical Education tears down sociability by encouraging people to attempt to surpass each other in many of the activities" (Wear 1951, p.126). The modified item reads "Competition sometimes causes unpleasantness, but this is a necessary part of Physical Education".

Subjects were requested to circle a response from a continuum of "strongly agree", "agree", "undecided", "disagree", and "strongly disagree". Many researchers argue that the undecided choice should be omitted from such inventories as it does not indicate a negative or positive response, however it was felt that this is a legitimate option for the respondent. If the undecided option were deleted, it would break the continuum between the agree and disagree choices. Also of concern was the

age group of the students, who may decide to choose the "undecided" option and have a valid reason for their responses.

Reliability of the instrument was determined by a pilot study. The Modified Wear Attitude Inventory was administered to a class of Year 9 girls and boys randomly selected from the existing lower school classes of the government secondary school. The data were analysed using a Pearson Product-Moment Correlation yielding a reliability coefficient of .86 ($p < .01$) for the total inventory items. Reliability coefficients for individual items ranged from .74 to .98 and were therefore deemed acceptable.

Validity of the instrument was determined by asking three experts in the field of physical education to examine the inventory for its face and content validity. The experts chosen were long-serving physical education lecturers from Edith Cowan University with experience of teaching in secondary schools. This procedure was to ensure that the items represented and measured the four traditional objectives of physical education outlined by Wear (1951). The experts found the inventory to be sound in both areas and was deemed by them to be an acceptable and valid instrument to measure attitudes towards compulsory physical education. The allocation of individual items to each objective by Wear (1951) could not be found in

the literature. The objectives are: physical, social, mental-emotional and general - which refers to the relative value of physical education. Each of the items, after being categorised by the three experts, fall exclusively into one of these four categories of objectives:

TABLE 2

ALLOCATION OF ITEMS ON THE WEAR ATTITUDE INVENTORY INTO OBJECTIVE CATEGORIES.

| OBJECTIVE | ITEM NUMBER | N |
|------------------|---|----|
| General | 1, 6, 9, 12, 16, 18, 22, 24, 28, 29, 30, 39 | 12 |
| Mental/Emotional | 5, 11, 14, 21, 23, 25, 26, 32, 37 | 9 |
| Physical | 2, 3, 4, 7, 10, 27, 34, 36, 38 | 9 |
| Social | 8, 13, 15, 17, 19, 20, 31, 33, 35, 40 | 10 |

Procedures

The study involved the collection of quantitative data by the Modified Wear Attitude Inventory.

A master sheet was used when administering the inventory to students. It contained a list of student surnames plus their first initials. Students were given a number which they were required to mark on their inventory. This procedure was carried out to ensure anonymity of the respondent.

Limitations of the Study

The findings cannot be generalised to the wider Australian high school student population as the results from the study may not represent those attitudes held by all students. However results may be generalised to the population of the selected school due to the relatively large sample size.

Throughout the literature, there appear to be several problems encountered in measuring the affective domain, and more specifically in the administering and construction of questionnaires. Stanley and Hopkins (1972), and Hopkins (1980) found that true opinions or attitudes are sometimes difficult to obtain through the use of scales because "...the desired response (considered desirable by the researcher or society) is usually apparent to the respondent" (Hopkins, 1980, p.303). Thus the subject may tend to give the obviously correct or desired response rather than a true personal feeling about the statement.

Stanley and Hopkins (1972) found three problems specific to questionnaires. The first of these is "fakability" by which subjects can fake their score in the direction of favourable or unfavourable. Second, is the problem of semantics. Questionnaire responses frequently demand differences in degree. Consequently, words such as

"strongly agree," "agree", or "undecided" are required. According to Stanley and Hopkins (1972) "... there is considerable variation in the explicit meanings that people attach to such words. The validity of self-report information is reduced to the extent that the descriptive terms employed do not have uniform meaning across individuals" (p.300). Criterion adequacy is the third problem associated with questionnaires. Stanley and Hopkins (1972) argued that there is no definite criterion that will demonstrate the instrument's validity. It would seem that only after many varied and extensive studies would it be possible to establish the construct validity of instruments of this kind.

CHAPTER 4
ANALYSIS OF RESULTS

The following chapter provides the analysis of results obtained from student completion of the Wear Attitude Inventory.

Scores on the inventory were awarded in the following manner: strongly agree - 5, agree - 4, undecided - 3, disagree - 2, and strongly disagree - 1. Thus if a subject circled "strongly agree" for all 40 items, he/she would receive a maximum score of 200 points, indicating the most positive attitude towards physical education.

A two way ANOVA was used to compare how each subgroup responded to the individual items on the Wear Attitude Inventory. Results are presented in the form of tables to indicate the level of significance of each item according to year level and sex. Raw score means are attached as Appendices B, C and D.

For the purposes of evaluating the data, a response from 1 to 5 is required from the respondent when answering the inventory. A mean score of 2.5 or more was taken to indicate a favourable attitude towards compulsory physical education. A mean score of 2.49 or less was taken to indicate an unfavourable attitude towards compulsory physical education.

Specific reference is made to particular items on the modified Wear Attitude Inventory (Appendix A).

Only those items with statistically significant differences at the .05, .01 and .001 level will be reported and discussed.

Unless indicated, female scores appear first, males second. Similarly, Year 8 mean scores appear first, followed by Year 9 and 10 mean scores.

Table 3 shows an overall profile of respondents' mean scores for each item on the Wear Attitude Inventory. It indicates that respondents scored close to the mean for most items. This table is important for further reference when comparing the differences in mean scores between sexes and year levels.

TABLE 3

PROFILE OF RESPONDENT ATTITUDES BY ITEM, MEAN AND STANDARD DEVIATION.

| ITEM | MEAN | STANDARD DEVIATION |
|------|------|--------------------|
| 1 | 4.09 | 1.18 |
| 2 | 3.56 | 0.97 |
| 3 | 3.23 | 1.06 |
| 4 | 4.02 | 1.03 |
| 5 | 3.63 | 1.08 |
| 6 | 4.15 | 1.00 |
| 7 | 3.50 | 1.09 |
| 8 | 3.37 | 1.11 |
| 9 | 4.08 | 1.12 |
| 10 | 3.51 | 1.06 |
| 11 | 3.28 | 1.12 |
| 12 | 2.99 | 1.18 |
| 13 | 3.96 | 1.07 |
| 14 | 3.79 | 0.92 |
| 15 | 4.35 | 0.81 |
| 16 | 3.36 | 0.97 |
| 17 | 3.58 | 1.37 |
| 18 | 4.23 | 0.84 |
| 19 | 2.84 | 1.17 |
| 20 | 3.39 | 1.24 |
| 21 | 4.24 | 0.75 |
| 22 | 3.76 | 1.07 |
| 23 | 3.25 | 1.18 |
| 24 | 3.87 | 1.13 |
| 25 | 3.71 | 1.09 |
| 26 | 3.74 | 1.09 |
| 27 | 3.81 | 1.11 |
| 28 | 4.02 | 0.93 |
| 29 | 3.56 | 1.12 |
| 30 | 3.57 | 1.09 |
| 31 | 3.73 | 1.19 |
| 32 | 3.71 | 0.98 |
| 33 | 4.13 | 0.97 |
| 34 | 4.21 | 1.00 |
| 35 | 3.78 | 1.07 |
| 36 | 3.87 | 1.21 |
| 37 | 3.42 | 1.30 |
| 38 | 4.18 | 1.05 |
| 39 | 3.87 | 1.08 |
| 40 | 4.26 | 0.94 |

Responses by Sex

When differences in the responses of girls and boys were examined in Table 4, 26 items were statistically significant at the .001 level, five statistically significant at the .01 level and five statistically significant at the .05 level. In all cases of statistical significance, boys had higher mean scores than girls, indicating that although girls had a favourable attitude towards compulsory physical education, boys' attitudes were more positive than girls.

TABLE 4
STATISTICALLY SIGNIFICANT DIFFERENCES OF RESPONDENT
ATTITUDES BY SEX

| ITEM | SEX | MEAN | P |
|--|-----|------|------|
| 1. If for any reason a few subjects have to be dropped from the unit curriculum, physical education should not be one of them. | F | 3.72 | .001 |
| | M | 4.37 | |
| 3. I learn how to control my emotions during physical education. | F | 3.00 | .05 |
| | M | 3.40 | |
| 4. Engaging in physical activity makes me interested in keeping healthy | F | 3.69 | .001 |
| | M | 4.28 | |
| 5. Physical education is important because it helps me develop good personal qualities | F | 3.25 | .001 |
| | M | 3.93 | |
| 6. The time spent in physical education classes is worthwhile. | F | 3.80 | .001 |
| | M | 4.40 | |
| 7. Participating in physical activity helps work off harmful emotional tension. | F | 3.14 | .001 |
| | M | 3.79 | |
| 8. Participation in physical education activities gives me all the strength I need. | F | 2.91 | .001 |
| | M | 3.55 | |
| 9. I would take physical education even if it wasn't compulsory. | F | 3.62 | .001 |
| | M | 4.45 | |
| 10. My participation in physical education makes me feel good about myself. | F | 2.99 | .001 |
| | M | 3.92 | |
| 11. Participating in physical education activities makes me a more likeable person to others. | F | 2.93 | .001 |
| | M | 3.56 | |

| | | | |
|---|--------|--------------|------|
| 12. I don't think there is enough emphasis given to physical education in my school. | F M | 2.71 3.23 | .05 |
| 13. It is important for my physical skills to be improved. | F M | 3.65 4.23 | .001 |
| 15. Exercises done regularly improve my general health | F M | 4.13 4.54 | .01 |
| 17. Skill in active games or sports is necessary for leading an enjoyable life. | F M | 3.15 3.97 | .001 |
| 18. Physical education is a good subject if the right subjects are chosen. | F M | 4.05 4.38 | .05 |
| 19. Physical education activities do no physical harm to my body. | F M | 3.56 4.11 | .05 |
| 20. Participating in physical activity brings about relaxation. | F M | 2.90 3.80 | .001 |
| 21. Associating with others in physical activity is fun. | F M | 3.98 4.45 | .001 |
| 22. Physical education classes provide me with knowledge that will be of value outside the class. | F M | 3.31 4.12 | .001 |
| 23. Physical education classes help me form attitudes which will make me a better citizen. | F M | 2.91 3.52 | .01 |
| 24. There should be more time devoted to physical education in schools. | F M | 3.36 4.31 | .001 |
| 25. Physical education activities are among the best for making friends. | F M | 3.31 4.04 | .001 |
| 26. Team activities give me the chance of belonging to a group. | F M | 3.41 4.08 | .001 |
| 27. Physical education is worthwhile because I value the time I spend in class. | F M | 3.40 4.15 | .001 |

| | | | |
|--|--------|--------------|------|
| 28. Physical education helps me maintain all-round good health. | F M | 3.72 4.28 | .001 |
| 29. Physical education skills help me improve my life-style. | F M | 3.25 3.82 | .01 |
| 30. I gain many personal benefits by participating in physical education activities. | F M | 3.20 3.87 | .001 |
| 31. I need more physical exercise than just taking care of my school work. | F M | 3.46 3.94 | .05 |
| 32. Group physical education activities develop positive personal qualities. | F M | 3.24 4.08 | .001 |
| 33. All people will profit from an hour of physical activity every day. | F M | 3.80 4.42 | .001 |
| 34. Participating in physical education activities does not upset me emotionally. | F M | 3.89 4.47 | .001 |
| 35. Physical education activities help me build up strength and endurance to cope with every day living. | F M | 3.33 4.15 | .001 |
| 36. Physical education should be included in the programme of every school because it improves my emotional health | F M | 3.37 4.26 | .001 |
| 38. I would recommend physical education to anyone. | F M | 3.92 4.43 | .01 |
| 39. Participation in physical education activities gives me a healthy outlook on life. | F M | 3.60 4.11 | .01 |
| 40. Physical education classes improve my physical fitness. | F M | 3.94 4.50 | .001 |

Responses by Year Level

When differences in the responses by year level were examined, items 6, 34 and 35 proved to be significant at the .05 level, with items 26 and 27 being significant at the .01 level (see Table 5).

The mean scores for Year 8 students on item 6 were significantly higher than those in Year 9 and 10 consecutively ($p < .05$), with all mean scores being positive.

The mean scores for Year 8 students on items 26 and 27 were significantly higher than those in Years 9 and 10 consecutively ($p < .01$), with all mean scores being positive.

The mean scores for Year 8 students on item 34 were significantly higher than those in Year 10, with the mean score for Year 10 students being higher than year 9 students ($p < .05$), with all mean scores being positive.

The mean scores for Year 8 and 9 students were equal on item 35 and significantly higher than the Year 10 mean score ($p < .05$). All mean scores were positive.

The results from these five items indicate that attitudes towards compulsory physical education become less positive as year level increases, although attitudes remain positive.

TABLE 5
STATISTICALLY SIGNIFICANT DIFFERENCES OF RESPONDENT
ATTITUDES BY YEAR LEVEL

| ITEM | YEAR | MEAN | P |
|--|------|------|-----|
| 6. The time spent in physical education classes is worthwhile. | 8 | 4.41 | .05 |
| | 9 | 3.98 | |
| | 10 | 3.91 | |
| 26. Team activities give me the chance of belonging to a group. | 8 | 4.10 | .01 |
| | 9 | 3.54 | |
| | 10 | 3.49 | |
| 27. Physical education is worthwhile because I value the time I spend in class. | 8 | 4.05 | .01 |
| | 9 | 3.85 | |
| | 10 | 3.40 | |
| 34. Participating in physical education activities does not upset me emotionally. | 8 | 4.42 | .05 |
| | 9 | 3.87 | |
| | 10 | 4.25 | |
| 35. Physical education activities help me build up strength and endurance to cope with every day living. | 8 | 3.91 | .05 |
| | 9 | 3.91 | |
| | 10 | 3.40 | |

Responses by Sex and Year Level

Differences between items 15, 17 and 37 proved to be statistically significant at the .05 level when comparing the mean scores of respondent attitudes by sex and year level (see Table 6).

The mean score for Year 8 boys was significantly higher than those in Year 9, with the Year 9 boys' mean score

being higher than the Year 10 boys for item 15 ($p < .05$). The mean score for Year 9 girls was significantly lower than Year 8 girls, followed by Year 10 ($p < .05$). However the mean scores for all year levels were positive.

The mean score for Year 8 boys was significantly lower than Year 10 boys, with the mean score for Year 9 boys being significantly higher than both Year 8 and 10 boys for item 17 ($p < .05$). The mean score for Year 8 girls was significantly higher than Year 9 and 10 girls consecutively ($p < .05$). However the mean scores for all year levels were positive.

The mean score for Year 9 boys was significantly lower than Year 10 boys, with the mean scores for Year 8 boys being highest for item 37 ($p < .05$). The mean score for Year 8 girls was significantly lower than Year 10 girls, with Year 9 girls being highest for item 37 ($p < .05$). The mean scores for all year levels were positive.

The differences by sex (when comparing male and female mean scores), is so great, that it causes a significant difference in mean scores between year levels on items 15, 17 and 35. These differences in attitude by year level and sex can be accounted for in Table 3, which presents an overall profile of respondent attitudes. The standard deviations for items 17 and 37 (1.37 and 1.30), are significantly higher than all other items, with the standard deviation for item 15 (0.81) being significantly lower than all other items.

The items discussed indicate that girls' attitudes towards compulsory physical education tend to become less positive as the year level increases, although their mean scores are still positive. However, the reverse is true for boys. That is, their positive attitudes towards compulsory physical education tend to become more positive as the year level increases.

TABLE 6
STATISTICALLY SIGNIFICANT DIFFERENCES OF
RESPONDENT ATTITUDES BY SEX
AND YEAR LEVEL

| ITEM | SEX | YEAR | MEAN | P |
|--|-----|------|------|-----|
| 15. Exercises done regularly improve my general health. | F | 8 | 4.00 | .05 |
| | F | 9 | 3.95 | |
| | F | 10 | 4.44 | |
| | M | 8 | 4.72 | .05 |
| | M | 9 | 4.57 | |
| | M | 10 | 4.35 | |
| 17. Skill in active games or sports is necessary for leading an enjoyable life. | F | 8 | 3.76 | .05 |
| | F | 9 | 3.04 | |
| | F | 10 | 2.66 | |
| | M | 8 | 3.64 | .05 |
| | M | 9 | 4.23 | |
| | M | 10 | 3.90 | |
| 37. Competition sometimes causes unpleasantness, but this is a necessary part of physical education. | F | 8 | 2.80 | .05 |
| | F | 9 | 3.62 | |
| | F | 10 | 3.44 | |
| | M | 8 | 3.80 | .05 |
| | M | 9 | 3.23 | |
| | M | 10 | 3.48 | |

Also of interest were the statistically significant differences when the categories of the inventory were considered (Table 2). When analysing the categories by

sex, items 2 (physical), 14 (mental/emotional), and 16 (general) were not statistically significant between the sexes. All other items in each category proved to be statistically significant.

When analysing the categories by year level, items 6 (general), 26 (mental/emotional), 27 (physical), 34 (physical), and 35 (social) were the only items that were statistically different.

When analysing the categories by sex and year level, items 15 (social), 17 (social) and 37 (mental/emotional) were the only items where differences were statistically significant.

CHAPTER 5

CONCLUSION

This final section indicates major findings of the study and recommendations resulting from these findings.

Summary of Findings

Analysis of the Wear Attitude Inventory results reveals that student attitudes towards compulsory physical education in general differ by sex. It was found that boys had more favourable attitudes towards compulsory physical education than girls, however girls' attitudes towards physical education were positive. These findings support research by Heys (1989), who found that boys had more favourable attitudes than girls.

The results also revealed that student attitudes towards compulsory physical education differ by year level. As the year level increased, attitudes towards physical education become less positive on particular items of the Wear Attitude Inventory. This supports findings by Baker (1969).

The results also indicate that student attitudes towards compulsory physical education differ by sex and year level on particular items of the Wear Attitude Inventory. Girls' attitudes towards compulsory physical education tend to become less positive as the year level increases, although their attitudes remain positive. The reverse is

true for boys, that is, their attitudes towards compulsory physical education tend to improve as the year level increases, and become more positive. Prince (1969) had reported similar findings for boys.

Overall, the results from this research indicate that the present physical education programme practised at the selected school is successful in maintaining positive attitudes in lower school students. However, the teachers need to investigate why girls' attitudes become less positive as they get older and the factors within their physical education programme which may be affecting those attitudes as outlined in the Conceptual Framework.

A summary of this research will be reported to the school to assist them with their programme evaluation. Teachers will be encouraged to investigate aspects of the programme in the hope of increasing girls' attitudes towards physical education. This research should provide useful information for the teachers at the school in the development of future programmes, and the participation and interest of students in these programmes.

Recommendations for Further Research

Of particular interest was the differences between sex and year level. Further study focusing on these findings could be undertaken by utilising qualitative methods such

as interviews to determine why the differences occurred between year level and by sex when the results indicated statistically significant differences at the .001 level in particular items.

APPENDIX A

MODIFIED VERSION OF THE WEAR ATTITUDE INVENTORY

PHYSICAL EDUCATION STUDY

Directions - Please read carefully

This study is part of research being undertaken at Edith Cowan University to find out about student attitudes towards physical education.

Below you will find some statements about physical education. I would like to know how you feel about each statement. You are asked to consider physical education as an activity lesson taught during a regular class period. No reference is intended in any statement to interschool sport. Students differ widely in the way they feel about each statement. There are no right or wrong answers.

Read each statement carefully. Opposite the statement circle the number which best expresses your feeling about the statement. After reading a statement you will know at once, in most cases, whether you agree or disagree with the statement. If you agree, then decide whether to circle under "agree" or "strongly agree". If you disagree, then decide whether to circle under "disagree" or "strongly disagree". If you are undecided (or neutral) concerning your feelings about the statement, then circle under "undecided".

This is not a test, but is simply a survey to determine how people feel about physical education. Results will be kept confidential, so please answer each statement as you actually feel about it. Be sure to answer every statement.

Thank you for your assistance.

Mileva Pirot

Please circle your sex: MALE FEMALE

Please circle your year level: 8 9 10

CODE: SA = Strongly Agree; A = Agree;

 U = Undecided; D = Disagree;

 SD = Strongly Disagree.

| <u>STATEMENTS:</u> | SA | A | U | D | SD |
|--|----|---|---|---|----|
| 1. If for any reason a few subjects have to be dropped from the unit curriculum, physical education should not be one of them. | 5 | 4 | 3 | 2 | 1 |
| 2. I have a better understanding of other people when I participate in physical activity. | 5 | 4 | 3 | 2 | 1 |
| 3. I learn how to control my emotions during physical education. | 5 | 4 | 3 | 2 | 1 |
| 4. Engaging in physical activity makes me interested in keeping healthy. | 5 | 4 | 3 | 2 | 1 |
| 5. Physical education is important because it helps me develop good personal qualities. | 5 | 4 | 3 | 2 | 1 |

| | | | | | | |
|-----|---|---|---|---|---|---|
| 6. | The time spent in physical education classes is worthwhile. | 5 | 4 | 3 | 2 | 1 |
| 7. | Participating in physical activity helps work off harmful emotional tension. | 5 | 4 | 3 | 2 | 1 |
| 8. | Participation in physical education activities gives me all the strength I need. | 5 | 4 | 3 | 2 | 1 |
| 9. | I would take physical education even if it wasn't compulsory. | 5 | 4 | 3 | 2 | 1 |
| 10. | My participation in physical education makes me feel good about myself. | 5 | 4 | 3 | 2 | 1 |
| 11. | Participating in physical education activities makes me a more likeable person to others. | 5 | 4 | 3 | 2 | 1 |
| 12. | I don't think there is enough emphasis given to physical education in my school. | 5 | 4 | 3 | 2 | 1 |
| 13. | It is important for my physical skills to be improved. | 5 | 4 | 3 | 2 | 1 |
| 14. | Physical education classes provide opportunities for worthwhile social experiences with other students. | 5 | 4 | 3 | 2 | 1 |
| 15. | Exercises done regularly improve my general health. | 5 | 4 | 3 | 2 | 1 |
| 16. | A person is more emotionally stable if they participate in physical education. | 5 | 4 | 3 | 2 | 1 |
| 17. | Skill in active games or sports is necessary for leading an enjoyable life. | 5 | 4 | 3 | 2 | 1 |

| | | | | | | |
|-----|---|---|---|---|---|---|
| 18. | Physical education is a good subject if the right modules are chosen. | 5 | 4 | 3 | 2 | 1 |
| 19. | Physical education activities do no physical harm to my body. | 5 | 4 | 3 | 2 | 1 |
| 20. | Participating in physical activity brings about relaxation. | 5 | 4 | 3 | 2 | 1 |
| 21. | Associating with others in physical activity is fun. | 5 | 4 | 3 | 2 | 1 |
| 22. | Physical education classes provide me with knowledge that will be of value outside the class. | 5 | 4 | 3 | 2 | 1 |
| 23. | Physical education classes help me form attitudes which will make me a better citizen. | 5 | 4 | 3 | 2 | 1 |
| 24. | There should be more time devoted to physical education in schools. | 5 | 4 | 3 | 2 | 1 |
| 25. | Physical education activities are among the best for making friends. | 5 | 4 | 3 | 2 | 1 |
| 26. | Team activities give me the chance of belonging to a group. | 5 | 4 | 3 | 2 | 1 |
| 27. | Physical education is worthwhile because I value the time I spend in class. | 5 | 4 | 3 | 2 | 1 |
| 28. | Physical education helps me maintain all-round good health. | 5 | 4 | 3 | 2 | 1 |
| 29. | Physical education skills help me improve my life-style. | 5 | 4 | 3 | 2 | 1 |
| 30. | I gain many personal benefits by participating in physical education activities. | 5 | 4 | 3 | 2 | 1 |

| | | | | | | |
|-----|---|---|---|---|---|---|
| 31. | I need more physical exercise than just taking care of my school work. | 5 | 4 | 3 | 2 | 1 |
| 32. | Group physical education activities develop positive personal qualities. | 5 | 4 | 3 | 2 | 1 |
| 33. | All people will profit from an hour of physical activity every day. | 5 | 4 | 3 | 2 | 1 |
| 34. | Participating in physical education activities does not upset me emotionally. | 5 | 4 | 3 | 2 | 1 |
| 35. | Physical education activities help me build up strength and endurance to cope with every day living. | 5 | 4 | 3 | 2 | 1 |
| 36. | Physical education should be included in the programme of every school because it improves my emotional health. | 5 | 4 | 3 | 2 | 1 |
| 37. | Competition sometimes causes unpleasantness, but this is a necessary part of physical education. | 5 | 4 | 3 | 2 | 1 |
| 38. | I would recommend physical education to anyone. | 5 | 4 | 3 | 2 | 1 |
| 39. | Participation in physical education activities gives me a healthy outlook on life. | 5 | 4 | 3 | 2 | 1 |
| 40. | Physical education classes improve my physical fitness. | 5 | 4 | 3 | 2 | 1 |

APPENDIX B

TABLE 7

RAW SCORE MEANS OF ITEMS ON WEAR ATTITUDE INVENTORY BY SEX

| ITEM | MEAN F | MEAN M | P |
|------|-----------|-----------|------|
| 1 | 3.72 | 4.37 | .001 |
| 2 | 3.38 | 3.71 | .055 |
| 3 | 3.00 | 3.40 | .030 |
| 4 | 3.69 | 4.29 | .001 |
| 5 | 3.25 | 3.93 | .000 |
| 6 | 3.80 | 4.40 | .000 |
| 7 | 3.14 | 3.79 | .001 |
| 8 | 2.91 | 3.75 | .000 |
| 9 | 3.62 | 4.45 | .000 |
| 10 | 2.99 | 3.92 | .000 |
| 11 | 2.93 | 3.56 | .001 |
| 12 | 2.71 | 3.26 | .011 |
| 13 | 3.65 | 4.23 | .001 |
| 14 | 3.53 | 4.00 | .003 |
| 15 | 4.13 | 4.54 | .003 |
| 16 | 3.20 | 3.48 | .101 |
| 17 | 3.15 | 3.92 | .001 |
| 18 | 4.05 | 4.38 | .015 |
| 19 | 3.56 | 4.11 | .007 |
| 20 | 2.90 | 3.80 | .000 |
| 21 | 3.98 | 4.45 | .000 |
| 22 | 3.31 | 4.12 | .000 |
| 23 | 2.91 | 3.52 | .003 |
| 24 | 3.36 | 4.31 | .000 |
| 25 | 3.31 | 4.04 | .000 |
| 26 | 3.41 | 4.00 | .001 |
| 27 | 3.40 | 4.15 | .000 |
| 28 | 3.72 | 4.28 | .000 |
| 29 | 3.25 | 3.82 | .003 |
| 30 | 3.20 | 3.87 | .000 |
| 31 | 3.46 | 3.94 | .021 |
| 32 | 3.24 | 4.08 | .000 |
| 33 | 3.80 | 4.42 | .000 |
| 34 | 3.89 | 4.47 | .001 |
| 35 | 3.33 | 4.15 | .000 |
| 36 | 3.37 | 4.26 | .000 |
| 37 | 3.31 | 3.50 | .382 |
| 38 | 3.92 | 4.43 | .004 |
| 39 | 3.60 | 4.11 | .006 |
| 40 | 3.94 | 4.52 | .000 |

APPENDIX C

TABLE 8

RAW SCORE MEANS OF ITEMS ON WEAR ATTITUDE INVENTORY BY YEAR LEVEL

| ITEM | MEAN YR 8 | MEAN YR 9 | MEAN YR 10 | P |
|------|--------------|--------------|---------------|------|
| 1 | 4.09 | 4.14 | 3.92 | .641 |
| 2 | 3.64 | 3.61 | 3.39 | .419 |
| 3 | 3.39 | 3.26 | 2.97 | .150 |
| 4 | 4.07 | 3.96 | 3.94 | .811 |
| 5 | 3.61 | 3.66 | 3.50 | .780 |
| 6 | 4.41 | 3.98 | 3.91 | .025 |
| 7 | 3.65 | 3.19 | 3.55 | .101 |
| 8 | 3.55 | 3.40 | 3.04 | .060 |
| 9 | 3.93 | 4.10 | 4.08 | .719 |
| 10 | 3.48 | 3.29 | 3.59 | .316 |
| 11 | 3.20 | 3.33 | 3.21 | .830 |
| 12 | 3.12 | 3.01 | 2.79 | .392 |
| 13 | 3.91 | 4.12 | 3.80 | .342 |
| 14 | 3.88 | 3.59 | 3.82 | .268 |
| 15 | 4.36 | 4.26 | 4.40 | .702 |
| 16 | 3.23 | 3.49 | 3.30 | .438 |
| 17 | 3.70 | 3.64 | 3.28 | .264 |
| 18 | 4.23 | 4.23 | 4.18 | .950 |
| 19 | 3.77 | 3.96 | 3.78 | .683 |
| 20 | 3.26 | 3.50 | 3.28 | .570 |
| 21 | 4.18 | 4.23 | 4.23 | .919 |
| 22 | 3.89 | 3.75 | 3.50 | .158 |
| 23 | 3.19 | 3.40 | 3.06 | .374 |
| 24 | 3.85 | 3.92 | 3.73 | .682 |
| 25 | 3.95 | 3.63 | 3.44 | .065 |
| 26 | 4.10 | 3.54 | 3.49 | .009 |
| 27 | 4.08 | 3.85 | 3.40 | .007 |
| 28 | 3.92 | 4.07 | 4.00 | .712 |
| 29 | 3.65 | 3.59 | 3.38 | .468 |
| 30 | 3.63 | 3.68 | 3.30 | .182 |
| 31 | 3.71 | 3.81 | 3.59 | .686 |
| 32 | 3.70 | 3.61 | 3.68 | .901 |
| 33 | 4.02 | 4.29 | 4.03 | .308 |
| 34 | 4.42 | 3.87 | 4.25 | .019 |
| 35 | 3.91 | 3.91 | 3.40 | .022 |
| 36 | 4.01 | 3.71 | 3.73 | .373 |
| 37 | 3.30 | 3.46 | 3.46 | .800 |
| 38 | 4.20 | 4.40 | 3.92 | .088 |
| 39 | 3.67 | 4.10 | 3.79 | .159 |
| 40 | 4.16 | 4.22 | 4.33 | .662 |

APPENDIX D

TABLE 9

RAW SCORE MEANS OF ITEMS ON WEAR ATTITUDE INVENTORY BY SEX AND YEAR LEVEL

| ITEM | MEAN YR 8 F | MEAN YR 9 F | MEAN YR 10 F | MEAN YR 8 M | MEAN YR 9 M | MEAN YR 10 M | P |
|------|----------------|----------------|-----------------|----------------|----------------|-----------------|------|
| 1 | 3.61 | 4.00 | 3.55 | 4.56 | 4.28 | 4.29 | .395 |
| 2 | 3.57 | 3.31 | 3.27 | 3.72 | 3.90 | 3.51 | .537 |
| 3 | 3.38 | 3.09 | 2.55 | 3.40 | 3.42 | 3.38 | .177 |
| 4 | 3.90 | 3.50 | 3.66 | 4.24 | 4.42 | 4.22 | .376 |
| 5 | 3.38 | 3.27 | 3.11 | 3.84 | 4.04 | 3.90 | .695 |
| 6 | 4.23 | 3.72 | 3.44 | 4.61 | 4.23 | 4.38 | .317 |
| 7 | 3.38 | 2.77 | 3.27 | 3.92 | 3.61 | 3.83 | .744 |
| 8 | 3.19 | 2.95 | 2.61 | 3.92 | 3.85 | 3.48 | .915 |
| 9 | 3.47 | 3.68 | 3.72 | 4.40 | 4.52 | 4.45 | .908 |
| 10 | 3.09 | 2.72 | 3.16 | 3.88 | 3.85 | 4.03 | .677 |
| 11 | 2.76 | 3.09 | 2.94 | 3.64 | 3.57 | 3.48 | .652 |
| 12 | 3.04 | 2.54 | 2.55 | 3.20 | 3.47 | 3.03 | .292 |
| 13 | 3.42 | 3.86 | 3.66 | 4.40 | 4.38 | 3.93 | .266 |
| 14 | 3.81 | 3.22 | 3.55 | 3.96 | 3.95 | 4.09 | .306 |
| 15 | 4.00 | 3.95 | 4.44 | 4.72 | 4.57 | 4.35 | .030 |
| 16 | 3.14 | 3.40 | 3.05 | 3.32 | 3.57 | 3.54 | .662 |
| 17 | 3.76 | 3.04 | 2.66 | 3.64 | 4.23 | 3.90 | .022 |
| 18 | 4.14 | 3.95 | 4.05 | 4.32 | 4.52 | 4.32 | .484 |
| 19 | 3.38 | 3.59 | 3.72 | 4.16 | 4.33 | 3.83 | .312 |
| 20 | 3.09 | 2.77 | 2.83 | 3.44 | 4.23 | 3.74 | .080 |
| 21 | 4.00 | 4.00 | 3.94 | 4.36 | 4.47 | 4.51 | .785 |
| 22 | 3.71 | 3.22 | 3.00 | 4.08 | 4.28 | 4.00 | .189 |
| 23 | 3.14 | 3.00 | 2.61 | 3.24 | 3.81 | 3.51 | .192 |
| 24 | 3.47 | 3.27 | 3.33 | 4.24 | 4.57 | 4.12 | .409 |
| 25 | 3.66 | 3.22 | 3.05 | 4.24 | 4.04 | 3.83 | .830 |
| 26 | 4.00 | 3.13 | 3.11 | 4.20 | 3.95 | 3.87 | .297 |
| 27 | 4.00 | 3.27 | 2.94 | 4.16 | 4.42 | 3.87 | .057 |
| 28 | 3.76 | 3.68 | 3.72 | 4.08 | 4.47 | 4.29 | .464 |
| 29 | 3.61 | 3.09 | 3.05 | 3.68 | 4.09 | 3.71 | .120 |
| 30 | 3.42 | 3.36 | 2.83 | 3.84 | 4.00 | 3.77 | .484 |
| 31 | 3.38 | 3.63 | 3.38 | 4.04 | 4.00 | 3.80 | .823 |
| 32 | 3.52 | 3.04 | 3.16 | 3.88 | 4.19 | 4.19 | .082 |
| 33 | 3.76 | 3.81 | 3.83 | 4.28 | 4.76 | 4.22 | .349 |
| 34 | 4.33 | 3.36 | 4.00 | 4.52 | 4.38 | 4.51 | .113 |
| 35 | 3.61 | 3.45 | 2.94 | 4.20 | 4.38 | 3.87 | .634 |
| 36 | 3.71 | 3.13 | 3.27 | 4.32 | 4.28 | 4.19 | .534 |
| 37 | 2.81 | 3.68 | 3.44 | 3.80 | 3.23 | 3.48 | .031 |
| 38 | 4.04 | 4.00 | 3.72 | 4.36 | 4.81 | 4.12 | .481 |
| 39 | 3.47 | 3.77 | 3.55 | 3.88 | 4.42 | 4.03 | .848 |
| 40 | 4.00 | 3.72 | 4.11 | 4.32 | 4.71 | 4.54 | .185 |

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