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# THE EXAMINATION OF STATE SPORT SELF-CONFIDENCE OF SECONDARY SCHOOL BOYS AND GIRLS PARTICIPATING IN COEDUCATIONAL AND GENDER SEPARATED PHYSICAL EDUCATION CLASSES

By

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## ABSTRACT

The purpose of this study was to determine the effect of single-sex and coeducational physical education classes on secondary school students' self-confidence levels. A dependent sample of Grade 10 students completed Vealey's State Sport-Confidence Inventory at the completion of their single-sex class and then again at the completion of their coeducational class. They also completed a sport specific self-confidence measure, in order to factor out their confidence in basketball and volleyball from their overall State Sport-Confidence. Some students also participated in focus group interviews at the completion of each class type. Vealey's State Sport-Confidence Inventory showed no significant differences between classes or between genders. However, qualitative results contradicted these findings as females indicated obvious differences between the two class types that would in turn affect their self-confidence levels. The results indicate that more research is needed into how class type affects the self-confidence of students in single-sex and coeducational physical education classes.

# PRÉCIS

L'objectif de cette étude était de comparer l'effet des cours d'éducation physique non mixtes et mixtes sur le niveau d'assurance des élèves qui fréquente l'école secondaire. Un échantillon de conciliation d'élèves de 10$^{e}$ année a rempli l'inventaire State Sport-Confidence Inventory de Vealey après avoir terminé le cours non mixte et encore une fois à l'issue du cours mixte. Les élèves ont également rempli un document qui mesure leur niveau d'assurance dans certains sports, afin que leur niveau d'assurance au ballon panier et au ballon volant puisse être analysé séparément. Certains élèves ont également participé à des entrevues dans le cadre de groupes de discussion à l'issue de chaque type de cours. L'inventaire State Sport-Confidence Inventory n'a permis de détecter aucune différence significative entre les cours ou entre les sexes. Cependant, les résultats qualitatifs ont contredit ces observations car les filles ont mentionné des différences évidentes entres les deux types de cours, différences qui pourraient affecter leur niveau d'assurance. Les résultats indiquent qu'il faut mener d'autres recherches en vue de déterminer comment le type de cours affecte le niveau d'assurance des élèves qui suivent des cours d'éducation physique non mixtes et mixtes.

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I would like to thank the following people for their role in the completion of this project.

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-Linda Miller for being my spiritual guide.

-My close friends who never mentioned the "T" word during those desperate days

-My Mom and Dad for being wonderful people

TABLE OF CONTENTS

*METHODS AND PROCEDURES*

*RESULTS*



*DISCUSSON*

## LIST OF TABLES

TABLE PAGE

# CHAPTER 1

## REVIEW OF LITERATURE

A primary goal of physical education is to enable students to develop the skills and attitudes that will encourage them to pursue active lifestyles beyond their school experiences. Of the many factors that influence that development, self-confidence is recognized as vital to both development and performance enhancement (Weinberg & Williams, 1993). This review of the literature will briefly discuss the construct of self-confidence and some of the methods that have been used to assess it. The cyclical relationship between self-confidence and participation in physical activity will be examined, and gender differences will be considered. Finally, in light of those gender differences, the potential effects of coeducational and single-sex physical education settings on self-confidence will be examined.

### Self-Confidence Defined

Much research has been conducted on the concept of self-confidence. There has been a tremendous variation between the definitions used and the measurement tools implemented to evaluate self-confidence.

Webster's dictionary defines self-confidence as "reliance on one's capacities" (Cayne and Lechner, 1993, p.905). Researchers have operationalized confidence in many ways (Feltz, 1988). Some of these definitions include

- self-efficacy – the conviction one has to execute successfully the behavior required to produce a certain outcome (Bandura, 1977)

- state sport confidence – the belief or degree of certainty an individual possesses, at one particular moment, about their ability to be successful in sport (Vealey, 1986)
- perceived competence – sense that one has the ability to master a task resulting from cumulative interactions with the environment (Harter, 1982)
- physical estimation – an individuals' self rating of his or her capabilities in sport and vigorous activity (Sonstroem, 1978)
- perceived ability – subjects provide a judgement of their own capabilities on such dimensions as strength, agility, and endurance (Rychman, Robbins, Thorton & Cantrell, 1982)
- physical self-perception –a subdomain of global self-esteem (the other subdomains being academic, social, emotional) that consists of further subdomains namely sport competence, attractive body, physical strength and physical condition (Fox & Corbin, 1989)

The first two concepts are situation specific measures regarding how confident one feels in performing. The remaining are general, multidimensional. More specifically, self-confidence in sport has been defined in Anshel's (1991) Dictionary of the Sport and Exercise Sciences as "a state, a transitory and situational belief or degree of certainty at one particular moment about one's ability to be successful in sport" (p.134).

Weiss, a leader in sport psychology, contends that although the meanings associated with each term and their measurement techniques differ somewhat, they all refer to the "description of, evaluation of, and affect toward one's competencies" (1993, p.41). She and others (Bjornstal, 1997; Lirgg, 1991) agree that regardless of the label

used, these constructs are important to understand, because they are predictive of both emotions and behavior in achievement situations such as sport (Weiss, 1993).

Self-Confidence Measurement Scales

In recent years, many tools have been developed and used to evaluate self-confidence and its related constructs. Some proposed major self-confidence models, examining specifically the physical domain, are discussed below.

Self-esteem was initially described as unidimensional, where it was viewed as a broad, global construct unable to differentiate between separate areas in one's life. Rosenberg's (1979) Self-Esteem Scale and Coopersmith's (1967) Self-Esteem Inventory are similar measures of unidimensional self-esteem. They are based on the premise that people have a global self consisting of the individual's total thoughts and feelings, where individuals reference themselves as objects (Grise, 1997). Rosenberg believed that respondents aggregated information from separate domains to form global scale responses (Marsh, 1994).

Shavelson, Huber and Stanton (1976), dissatisfied with this narrow definition of self-esteem, introduced a multidimensional and hierarchical model with a general construct of self-concept at the apex. The second level of this model consisted of academic and non-academic representations of the self. Physical, social, and emotional fields represented the non-academic domain. Lastly, the physical representation was further broken down into perceptions of physical abilities and appearances. This framework was not only accepted by many researchers, (Fox, 1988; Fox & Corbin, 1989; Marsh & Shavelson, 1985) but it led to other multidimensional models of self-esteem

(Fox & Corbin, 1989; Harter, 1985; Rychman, Robbins, Thornton & Cantrell, 1982; Sonstroem, 1978).

Sonstroem (1978) utilized Shavelson et al.'s (1976) model to help in the development of the Physical Estimation and Attraction to Physical Activity Scales (PEAS). PEAS was constructed to assess two aspects of perceived orientation toward physical activity. Sonstroem looked at the individual's self-rating of capabilities in sport and activity along with his or her interest and liking of a wide range of physical pursuits.

Bandura's theory of Self-Efficacy has been the most extensively used theory for investigating self-confidence in sport and motor performance (Feltz, 1988). Bandura's model hypothesizes that expectations of personal efficacy are derived from four principal sources of information: performance accomplishments, vicarious experiences, verbal persuasion, and physiological arousal. Bandura suggested that self-efficacy would mediate individuals' motivation and behavior via a positive relationship (Feltz, 1988). Using Bandura's theory, Rychman et al. (1982) developed a measurement scale for self-efficacy called the Physical Self-Efficacy scale using Perceived Physical Ability and Physical Self-Perception Confidence subscales that reflect confidence in the display of physical skills.

Also in 1982, Harter continued with the multi-dimensional theme and constructed a Perceived Competence Scale that encompassed three domains. Harter used cognitive, social, and physical measurements, along with a general sense of self-worth value to measure children's self-confidence. Harter's physical subscale of Perceived Competence has been predominantly employed in physical activity research (Feltz, 1988). Her model attempts to predict achievement motivation and is "based on socialization and affective

processes within a drive theory to explain the development of a child's sense of competence and subsequent behavior" (Feltz, 1988, p.435). This model predicts that young athletes who have high competence in sport and identify themselves as responsible for their performance persist longer at the sport and maintain their motivation (Feltz, 1988).

Nicholls (1984) expanded on Harter's model to include an ego/task ability dimension. Individuals feel they are competent relative to their peers (ego) or relative to their past performance (task). Nicholls also held different ideas regarding motivation. Nicolls theorized that people are motivated by a desire to demonstrate and/or develop high ability and avoid demonstrating low ability (Feltz, 1988).

Fox and Corbin combined the ideas from Shavelson et al. (1976) and Harter (1985) to develop the Physical Self-Perception Profile (1989). This scale reflected the multidimensional and hierarchical structure of self-confidence with global self-esteem at the apex of the hierarchy. Physical Self-Worth constituted one component of the next domain level. Four subdomain levels are present under this domain. These include sport competence, attractive body, physical strength, and physical condition.

Vealey (1986), dissatisfied with the general application of self-efficacy and self-confidence in the sporting domain, describes the Sport Confidence Model and created instrumentation to measure confidence specific to sport and physical activity. Sport confidence is defined as "the belief in one's ability to be successful in sport" (p.223). In this sport-specific model of self-confidence, sport confidence is conceptualized as having trait (SC-trait) and state (SC-state) components and also includes a competitive orientation construct to allow individuals to define their ideas regarding success.

SC-trait is the perception that individuals usually possess about their ability to be successful in sport, while SC-state represents the perceptions individuals have at a particular moment about their ability to be successful in sport (Vealey, 1986). Vealey included *competitive orientation* as a way to operationalize success, knowing that success means different things to different people. She selected *performing well* and *winning* as the goals on which to base competitive orientations. Through successive sport experiences, athletes become performance (performing well) or outcome (winning) oriented. This perspective is similar to that of Nicholls (1984).

Both SC-trait and competitive orientation are predicted to influence how athletes perceive factors within an objective sport situation and how they respond with certain SC-state levels. That is to say, SC-state is positively related to SC-trait and performance orientation and negatively related to outcome orientation. Hence, SC-state is predicted to be the most important mediator of behavior (Vealey, 1986). Therefore, Vealey (1986) developed three instruments to measure Sport Confidence: the Trait Sport Confidence Inventory (TSCI), the State Sport Confidence Inventory (SSCI) and the Competitive Orientation Inventory (COI).

Self-Confidence and Related Behaviors in Physical Activity

Weiss (1993) stated that regardless of the name given to describe self-confidence or the measure used to evaluate it, the constructs described earlier are predictive of positive emotions and actual behavior. Bjornstal (1997) states, "better perceptions of oneself and one's abilities lead to enhanced effort, persistence *(i.e., participation or*

*motivation)* and achievement *(performance)*, which in turn further benefit self-perceptions" (p. 56). Hence, all of the behaviors are interrelated in this proposed cycle.

Weiss (1993) argues that self-confidence predicts behavior, regardless of how it is described or measured, and Bjornstal (1997) contends that the specific construct of self-confidence will affect other behaviors in the cycle. Therefore, it seems important to describe the relationship between these behaviors (participation, motivation and performance) and self-confidence. Due to the vast amount of research reported in the literature, each relationship will be discussed separately.

Participation. Participation is probably the most researched behavior associated with self-confidence in physical activity. Much of the research supports the notion that participation in physical activity is related to improved self-esteem (CAPHERD, 1995; Canadian Fitness and Lifestyle Research Institute, 1994; Canadian Medical Association, 1995; Feltz & Weiss, 1982). This positive relationship can be seen through all age groups, including young children (Roberts, Klieber, & Duda, 1981; Ulrich, 1987), youth (Allison, Dwyer, & Makin, 1999; Foon, 1989; Jaffee & Manzer, 1992; Klient & Wiess, 1987; Scalon & Lewthwaite, 1986), young adults (Caruso & Gill, 1992), adults (Melnick & Mookerjee, 1991), and the elderly (Benzel, 1995). McAuley (1994) reported that self-esteem development was one of several positive psychosocial outcomes related to physical activity participation. Sixty-nine percent of the studies he reviewed supported this positive relationship. Calfas and Taylor (1994) examined 20 articles and studied the relationships among psychological variables and physical activity in youths. Results showed that physical activity was consistently related to improvements in self-esteem.

This positive relationship between participation in physical activity and self-esteem was also found in an examination of multiple studies of children (Gruber, 1986).

Motivation. Researchers have also discovered a positive relationship between motivation and self-confidence. Harter (1981) and Bandura (1977) based their self-confidence models on motivation. Those who perceive themselves as being highly competent at a skill will choose to be active and persistent, that is, motivated to participate in that activity. Similarly, people's judgements of their ability to accomplish specific tasks (self-confidence) strongly influence motivation, and consequently, behavior (Pajares & Kranzler, 1995). Studies supporting Harter's (1985) and Bandura's (1977) perceptions have been done using a variety of subjects, including children (Gerson, 1978; Weiss, Bredemeier & Shwechuck, 1986), youth (Fox, 1988), young adults (Fox, Corbin & Couldry, 1985; Fredrick, Morrison & Manning, 1996), and adults (Fredrick & Ryan, 1993; Virnig & McLeod, 1996).

Performance. In 1988, Feltz stated "in sport, self-confidence is one of the most frequently cited psychological factors thought to affect athletic achievements" (p.423). Lirgg (1991) supported this notion by stating that self-confidence is a psychological factor affecting athletic performance. Schunk (1995) added that regardless of the domain, research showed self-efficacy helps predict performance. Much of the literature supports this relationship (Feltz & Weiss, 1982; Jones, Swain & Hardy, 1993; LaGaurdia & Labbe, 1993; Miller, 1993; Terry, Cox, Lane & Karageorghis, 1996; Theodorakis, 1995). The literature supporting the performance/self-confidence relationship has utilized a variety of participants. College-age participants (George, 1994; Taylor, 1987; Wells, Collins & Hale, 1993), youths and adolescents, (Chase, Ewing, Lirgg & George,

1994; Jones, Swain & Hardy, 1993; Martin & Gill, 1991; Treasure, Monson & Lox, 1996; Watkins, Garcia & Turek, 1994; Weiss, Weiss & Klint, 1989), and children (Rudisill, Mahar & Meaney, 1993; Weiss, Ebbeck, McAuley & Wiese, 1990) have all demonstrated a performance/self-confidence relationship.

Gender Differences in Self-Confidence

Maccoby and Jacklin (1974) found that women display lower self-confidence than men in most achievement settings. Lenney (1977), through an extensive review of the research, argued that females may display less confidence in three situations: when the task is male oriented, when the situation is competitive or comparative, and when feedback is ambiguous. Male disposition for higher self-confidence scores is supported by research that has shown that androgynous and masculine-type identities were associated with higher levels of self-esteem (Mullis & McKinley, 1987; Rust & McCraw, 1984).

The education field is a well-researched achievement forum. Much of the research shows females are lacking in self-confidence. Thorndike-Christ (1991) found females lacked confidence in their ability to learn mathematics. Cohen and Kosler (1991) discovered males more frequently "strongly agreed" that (a) they were confident about doing well in the next math course, and that (b) males had greater a aptitude for math. Kysor (1993) also found males to have significantly higher self-confidence in mathematics than females. In contrast, Pajares and Kranzler (1995) did not find gender differences in ability, self-efficacy, or performance of high school students on math problem-solving performance.

Lirgg (1991) furthered Lenney's (1977) arguments by conducting a meta-analysis of gender differences in physical activity, researching two of Lenney's contentions: "when the task is male oriented," and "when the situation is competitive or comparative." All of the studies in this meta-analysis were done between 1978 and 1990 and utilized primarily the measurement scales created by Sonstroem (1978), Harter (1981), Rychman et al. (1982), Vealy (1986), and Fox and Corbin (1989). Lirgg's discoveries were threefold, with only one of Lenney's notions being supported. First, she discovered that males, on average, were more confident than females, but the magnitude of the differences couldn't be determined. Secondly, she found that females did not show less confidence than males in competitive situations. Lastly, Lenney's notion of females having less confidence than males in tasks that were perceived as "masculine" type tasks was upheld. The data fit a model suggesting that the more "masculine" the task (for example, football), the greater the gender difference in self-confidence, favouring males.

However, because the meta-analysis included only "masculine" type tasks, with the exception of one "feminine" type task (ballet), Lirgg recommended more research on self-confidence levels involving "feminine" type tasks. Clifton and Gill (1994) answered this call. They found females possessed more self-confidence in their ability at cheerleading and its various subtasks than males. Sanguinetti, Lee, and Nelson (1985) found similar results as girls displayed lower self-confidence than boys in a football task but higher self-confidence in ballet, a female-orientated activity.

Researchers have looked at gender differences in self-confidence in relation to motivation (Ryckman & Hamel, 1993), performance (Mills & Gehlson, 1996), and participation (Foon, 1989; Trost, Pate, Dowda, Saunders, Ward & Felton, 1996). While

most of these studies included youth and young adults, one study found evidence that these gender differences occurred right into the golden years. Godin and Shepard (1985), using Rychman et al.'s Perceived Self-Efficacy Profile (1982), found gender differences in total physical efficacy and perceived physical ability of participants ranging from 45 to 90 years of age.

Although most of the studies in physical activity support Lenney's notion that males display greater self-confidence than females in achievement settings, there have been a few studies that don't support this notion (Feltz, 1988; Perry and William, 1998).

Coeducational and Single-Sex Classes

Coeducational education has been a hot topic of research since the implementation of Title IX. It has spurned many debates over which environment is most beneficial to both sexes. Studies on coeducational and single-sex classes in schools have produced varied results.

For instance, researchers, looking at a variety of academic areas, have found that single-sex schools benefit students (Hamilton, 1985), especially females (Lee & Bryck, 1986). Jimenez and Lockheed (1989) in analyzing the performance of fifth graders on a standardized mathematics test, supported single-sex schooling for females, while coeducational schools were found to be more effective for the males' performance. Similarly, Eccles and Blumenfeld (1985) suggested that coeducation may facilitate achievement in boys but may dampen or have little positive effect on girls' achievements. Payne and Newton (1990) showed that male students had more positive views about coeducation than did females.

In the 1960s and 1970s, it was frequently argued that coeducational high schools provided a more natural social environment to prepare adolescents for adulthood than did single-sex schools (Marsh, Smith, Marsh & Owens, 1988). Supporting these thoughts, Schneider, Coutts, and Star (1988) found more positive self-concepts of academic ability in $10^{th}$ and $12^{th}$ grade females in coeducational schools than in their counterparts in single-sexed schools. Dollison (1998) challenged the earlier research, which supports single-sex education and suggested that sex segregation was not the most critical variable affecting mathematics achievement of adolescent females.

The debate over single-sex versus coeducational schooling has involved a number of longitudinal studies. Students' self-confidence levels were measured as their schools changed from single-sex schools to coeducational schools. Marsh, Smith, Marsh, & Owens (1988) examined the effects of this transition from grade 9-12, over a 5-year period on self-concept and academic achievement. They found that coeducational organizations enhanced self-concept for both boys and girls without compromising achievement. Kysor (1993) investigated the same transitional trend and the same age participants as Marsh et al., over a 4-year period. It was discovered that although males had higher total self-efficacy scores than the females, they had higher scores than the females prior to the transition and only maintained these higher standards after the transition. They also found there were no differences in self-efficacy from single-sex to coeducational schooling for either males or females. Smith (1996) completed a 10-year study using students from grade 7-11 in two coeducational schools. One school had been a single-sex girl's school, the other a single-sex boy's school. After an initial decrease in the first year of transition, both boys' and girls' self-concept increased substantially, even

above the values from the single-sex settings. All the while, achievement in math and English remained stable. At the 10-year mark, self-concept was measured again. The same high levels of self-concept demonstrated 5 years earlier, were found.

The roles of women in society have changed dramatically over the past 25 years, especially in comparison to men. Williams (1993) proposed that females might suffer in coeducational settings due to the contrast between traditional female roles and the behaviors necessary for educational excellence. The educational system socializes the sexes into specific roles based on tradition, bias, and the widespread desire to maintain the status quo which prompt females to play contradictory roles. Lee and Marks (1990) suggested the single-sex educational experience appears to enable young women to overcome certain social-psychological barriers to their academic and professional advancement, especially during the formative adolescent period. Some researchers have suggested that if high school can reduce the discrepancy between conflicting roles of females, specifically in coeducational settings, adolescent girls may be able to place a greater emphasis on achievement and hence reap the same benefits as their male counterparts (Monaco & Gaier, 1992).

## Coeducational and Single-Sex Physical Education

The impact of coeducational physical education classes on students has been the subject of much discussion (Bischoff, 1982; Duquin, 1978;). However, much of the literature appears to be commentary and not research-based (Geadelmann, 1981; Griffen, 1984; JOPERD, 1996; MacDonald, 1989; Monagan, 1983; Mikkelson, 1979; Stamm, 1979; Vertinsky, 1992).

Three recent research studies were discovered which emphasized the environmental differences between coeducational and single-sex physical education (Humbert, 1995; Lirgg, 1994; Treanor, Graber, Housner & Wiegand, 1998). All three studies concluded that single-sex physical education classes were preferred by the female students.

Only one study has been found that examined self-confidence levels in different physical education class types. Lirgg (1993) revealed that boys were more confident than girls in middle and high school coeducational basketball classes. She also found that both boys and girls thought basketball was more appropriate for males than for females. "Because we know very little about this area, research with all age levels is needed to determine the proper learning and competing environments for females, particularly in relation to their perceptions of self-confidence" (Lirgg, 1992, p. 172).

Summary

Much research has been done in the area of self-confidence. However, there is still uncertainty to the exact definition and parameters involved in self-confidence within the physical domain. Much of the research substantiates that females lack self-confidence in achievement settings, namely in sport and physical activity. Also, researchers have argued there is a cyclic relationship between self-confidence, effort, persistence and achievement. This cyclical relationship suggests that if we can provide an impetus somewhere in the cycle we can improve female participation rates in physical activity. One of the most logical places in the cycle for an impetus seems to be to try to increase

self-confidence. Finally, coeducational physical education classes seemed to be beneficial to males' and detrimental to females' self-confidence levels.

# CHAPTER 2

# THE EXAMINATION OF STATE SPORT SELF-CONFIDENCE OF SECONDARY SCHOOL BOYS AND GIRLS PARTICIPATING IN COEDUCATIONAL AND GENDER SEPARATED PHYSICAL EDUCATION CLASSES

According to a statement issued by the International Scientific Consensus Conference on Physical Activity, Health and Well-Being (Research Quarterly for Exercise and Sport, 1995), physical activity positively influences physical and psychosocial health at all stages of the life cycle. Thus, the promotion of physical activity is an effective means of "improving health and enhancing function and quality of life" (p. *v*).

Although female participation in sport and physical activity is growing, it is still not equivalent to male participation. Girls are not as physically active as boys, a difference that increases during adolescence (CAPHERD, 1996; Fitness and Amateur Sport, 1985; Hay, 1992). One might deduce, then, that young females are not enjoying the same physical and mental benefits as their male counterparts. The decline in athletic participation among adolescent girls and the link between physical activity and positive mental health suggest that girls should be encouraged to remain active throughout adolescence and into adulthood (Jaffe & Ricker, 1993). In order to increase female participation levels, it is necessary to understand the factors that encourage girls to be active. One of these factors may be their self-confidence in sport and physical activity.

Self-Confidence and Participation

Weiss (1993), a leader in sport psychology, has suggested that many self-perception constructs essentially refer to the "description of, evaluation of and affect toward one's competencies" (p. 41). Regardless of the label used, these constructs are important to understand because they are predictive of both positive emotions and actual behavior in achievement settings such as sport (Weiss, 1993). Bjornstal (1997) and Lirgg (1991) agree with these assumptions. Although constructs such as self-esteem, self-concept, perceived competence, self-efficacy and sport confidence are slightly different, they are related, and they do measure the "individual's perception of his or her abilities" (Lirgg, 1991, p. 294).

The relationship between self-confidence and participation appears to be cyclic. Bjornstal (1997) states that "better perceptions of oneself and one's abilities lead to enhanced effort, persistence *(i.e. participation)* and achievement, *(i.e. performance)*, which in turn further benefit self-perceptions" (p. 56). Bandura (1977) and Harter (1978) share similar thoughts on this cyclic relationship. They contend that those who perceive themselves as being highly competent at a particular skill will choose to be active and persistent in the activity. This persistence will lead to more attempts and mastery of the skill. Mastery or success in the skill will lead to an enhanced self-perception, which will theoretically maintain the cycle. Bjornstal (1997) furthered her above mentioned statement by stressing the role of significant others in this cycle. Parents, coaches, and peers should be realistic, supportive and encouraging in reinforcing one's capabilities in physical activity.

Researchers have generally found a positive relationship between females' self-confidence and their participation in physical activity (Ecceles & Harold, 1991; Harter, 1982; Lewko & Ewing, 1980; Roberts, Kleiber & Duda, 1981). However, ways of increasing girls' self-confidence in sport have not been fully clarified.

Gender Differences of Self-Confidence in Sport and Physical Activity

Maccoby and Jacklin (1974) found that women display lower self-confidence than men in most achievement settings. Lenney (1977), through extensive review of the research, argued that females may display less confidence in three situations: when the task is male oriented, when the situation is competitive or comparative, and when feedback is ambiguous.

The education field is a well-researched achievement forum. Much of the research shows females are lacking in self-confidence. Examining studies in mathematics, Thorndike-Christ (1991), Cohen and Kosler (1991), Kysor (1993) all reported gender differences, favoring males, in self-confidence, although Pajares and Kranzler (1995) found no differences.

Lirgg (1991) furthered Lenney's (1977) arguments by conducting a meta-analysis of gender differences in physical activity. Lirgg only researched two of Lenney's contentions, "when the task is male oriented," and "when the situation is competitive or comparative." All of the studies in this meta-analysis were completed between 1978 and 1990, and utilized primarily the measurement scales created by Sonstroem (1978), Harter (1981), Rychman et al. (1982), Vealy (1986), and Fox and Corbin (1989). Lirgg's discoveries were threefold, with only one of Lenney's notions being supported. First, she

discovered on average males were more confident than females, but the magnitude of the differences couldn't be determined. Secondly, she found females did not show less confidence than males in competitive situations. Lastly, Lenny's notion of females having less confidence than males in tasks that are perceived as "masculine" type tasks was upheld. The data fit a model suggesting that the more "masculine" the task (for example, football), the greater the gender difference in self-confidence, favouring males.

However, because the meta-analysis included only "masculine" type tasks, with the exception of one "feminine" type task (ballet), Lirgg recommended more research on self-confidence levels involving "feminine" type tasks. Clifton and Gill (1994) answered the call for more research on feminine-type tasks. They found females possessed more self-confidence in their ability at cheerleading and its various subtasks than males. Sanguinetti, Lee, and Nelson (1985) found similar results as girls displayed lower self-confidence than boys in a football task but higher self-confidence in ballet, a female orientated activity.

Other studies have looked at gender differences in self-confidence in relation to motivation (Weiss, McAuley, Ebbeck & Wiese, 1990), performance (Ryckman & Hamel, 1993), and participation (Foon, 1989; Trost, Pate, Dowda, Saunders, Ward & Felton, 1996). Ryckman and Hamel examined sport participation motives of 123 high school, young athletes who differed in their perceived physical abilities. Inconsistent with previous findings, no gender differences in participation motives were discovered. However, it was discovered that students higher in perceived physical ability were more intrinsically motivated (wanted to learn new skills, wanted to have fun, and liked the excitement and action of the activity). While students with lower perceived physical

ability were more extrinsically motivated (wanted to win, wanted to gain status, wanted to please parents or friends). Bjornstal (1997) suggests that these findings support the importance of enhancing self-perceptions as a means of encouraging motivation for physical activity participation. The relationship between performance, on two types of swimming starts, and State Sport Confidence in NCAA Division I swimmers was investigated by Mills and Gehlson (1996). Because swimming is a neutral, nonsex-typed activity it was hypothesized that no differences in self-confidence would be found. It was discovered that gender differences, favouring males, was an indicator of both State Sport Confidence and performance. Trost et. al (1996) researched gender differences in self-confidence and physical activity participation among fifth grade, predominately African-American students. Results again supported the majority of the literature by finding gender differences, tending toward the males, in self-efficacy, level of physical fitness, and participation in sport and physical activity. Foon (1989), using adolescent males and females with an average of 15 years, attempted to identify variables that might be associated with gender differences in sports participation. Because males were significantly more likely to participate in sport than females, and sports participation was positively related to high self-esteem, it might be deduced that males in this study had higher self-esteem than their female counterparts.

While these studies included youth and young adults, one study found evidence that these gender differences continued into the golden years. Godin and Shepard (1985), using Rychman et al.'s Perceived Self-Efficacy Profile (1982) found gender differences, again favouring males, in total physical efficacy and perceived physical ability of participants ranging from 45 to 90 years in age.

Various other studies of physical activity support Lenney's notion that males display greater self-confidence than females in achievement settings (Hayes, Croaker & Kowalski, 1999; Krane & Williams, 1994; Kysor, 1993). Feltz (1988) found, congruent with the majority of literature, that self-efficacy was a strong predictor of both male and female performance in diving. However, contradictory to most research, no gender differences in self-efficacy or performance measurements were discovered. Perry and William (1998) used yet another scale for measuring self-confidence, the Competitive State Anxiety Inventory 2 (as cited in Vealey, 1986). Tennis players of varying ability were investigated. No differences in self-confidence levels between males and females were discovered.

Coeducational and Single-Sexed Physical Education

In accordance with Bjornstal's (1997) theory, physical educators are significant others who should be able to influence the students' self-perceptions and self-confidence. However, this influence may be at least partially mediated by the context of the physical education class itself. Of specific interest is the potential difference in the impact of coeducational and single-sex physical education settings on the self-confidence levels of students.

Some researchers outside the field of physical education, believe that single-sex schooling is most beneficial to females (Hamilton, 1985; Lee, 1986), while coeducational settings benefit mostly males (Eccles & Blumenfeld, 1985; Jimenez & Lockheed, 1989). Other researchers are proponents of coeducational schooling (Dollison 1998; Kysosr 1993; Marsh et al., 1988; Schneider, Coutts & Starr, 1988; Smith,1996). Still, other

researchers believe the issue is not coeducational versus single-sex schooling but the conflicting roles that females must play in achievement settings, particularly when males are present (Monaco & Gaier, 1992; Williams, 1993; Lee & Marks, 1990).

Since the implementation of Title IX, the impact of coeducational physical education classes on students has been the subject of much discussion (Bischoff, 1982; Duquin, 1978). However, much of the literature discovered was commentary and not research-based (Geadelmann, 1981; Griffen, 1984; JOPERD, 1996; MacDonald, 1989b; Monagan, 1983; Mikkelson, 1979; Stamm, 1979; Vertinsky, 1992). Many of the commentary studies gave ad hoc opinions of, and suggestions for, coeducational physical education.

Three research studies were discovered which emphasized the environmental differences between coeducational and single-sex physical education (Humbert, 1995; Lirgg, 1994; Treanor, Graber, Housner, Wiegand, 1998). All three studies concluded that single-sex physical education classes were preferred by the female students.

Humbert (1995) used qualitative methodologies to study the experiences of high school girls in physical education. The study included grade 9 and 10 single-sex physical education participants, grade 11 and 12 coeducational physical education participants as well as females who opted out of physical education in grade 11 and 12 when it was not compulsory. Humbert found disturbing results which included sexual harassment, verbal harassment, and physical domination of gym space by boys over girls in the coeducational environment. The researcher herself, was victim to a sexual gesture from a male student during a physical education lesson which she was observing. The girls in this particular study preferred single-sex classes at all grade levels. The girls who opted

out of physical education in grade 11 and 12 stated if physical education was offered as single-sex classes at those grade levels, they would have considered taking the course.

Treanor et al. (1998) examined affinity toward physical education, self-confidence, and preferences for class type with middle school children. This year-long study was somewhat original in its design, as students participated in coeducational classes in the fall and single-sex classes in the spring. Results showed that boys had better self-perceptions and enjoyed physical education more than the girls, and regardless of perceived abilities, all students preferred single-sex classes. Consistent with Lirgg's findings (1993), students in same-sex classes exhibited higher levels of self-confidence.

Lirgg (1994), using middle and high school students, implemented three Likert scale questionnaires to gather data and examine students' perceptions of the environment in single-sex and coeducational classes. Results showed boys found single-sex classes more competitive and coeducational classes more cooperative, while girls perceived themselves as being more competitive in single-sex classes. Lirgg hypothesized the presence of boys and girls in the same class diminishes the competitive level because of the large discrepancy in skill level amongst the students. It was also discovered that girls' same sex classes were perceived most favourably, whereas boy same-sex classes were perceived least favourably.

Lirgg (1993) revealed that boys were more confident than girls in middle and high school coeducational basketball classes. She also found that both boys and girls thought basketball was more appropriate for males than for females. "Because we know very little about this area, research with all age levels is needed to determine the proper learning and

competing environments for females, particularly in relation to their perceptions of self-confidence" (Lirgg, 1992, p. 172).

Significance of the Study

Physical activity is of paramount importance in the promotion of physical and psychosocial health at all ages (Research Quarterly for Exercise and Sport, 1995). Due to difficulties in maintaining subjects over long periods of time, longitudinal research that directly associates adult physical activity behavior with adolescent behavior is scarce. However, Blair, Clark, Cureton and Powell's (1989) hypothesis that adult physical exercise habits may be a reflection of childhood physical habits, seems logical and seemingly reinforces the importance of physical education in initiating children and adolescents into physical activity.

Participation levels of girls in sport and physical activity, although increasing, do not equal those of their male counterparts, and the decline is particularly noticeable during adolescence. Females appear to have lower self-confidence than males in achievement situations (Lenney, 1977; Maccoby & Jacklin, 1974), including sport and physical education (Lirgg, 1991; 1993). Research suggests that, by increasing self-confidence levels, effort, persistence – and as a result, participation – increase, improving achievement outcomes, which then completes the cycle by raising self-confidence levels (Bjornstal, 1997). It seems evident that, to improve participation levels of females in sport and physical activity, we must improve their self-confidence levels. Physical educators, as significant others, are in a position to influence the self-confidence of their students (Bjornstal, 1997).

Lirgg (1992) completed a major review of research involving girls, women, sport and self-confidence. In her recommendations she urged, "we may need to identify the best environment in which girls compete" (p.172), coeducational or single-sex, in order to promote self-confidence in females at a young age. Later, she (1993) manipulated half of the existing coeducational classes to create new same-sex physical education classes and researched self-confidence levels in both types of classes. Hence, different students participated in the single-sex and coeducational classes. These independent groups' self-confidence levels were then statistically analyzed. Lirgg (1991) also recommended investigating gender differences in self-confidence across time. No dependent sample studies have been found that examine the self-confidence of students who participate in both coeducational and gender-separate physical education classes. The primary focus of the present study was to address this issue.

Lirgg also recommended that researchers determine students' perceptions of the gender appropriateness of specific tasks to confirm the validity of the assumption of type (1991). She further recommended the inclusion of both quantitative and qualitative research methods, assigning students to different class types consecutively, and using open-ended interviews with the students (1994). All of the above recommendations were applied to this study.

## Purpose

The purposes of this research are:

1. To determine the effect of class type (single-sexed, coeducational) on secondary school students' levels of self-confidence in sport.

2. To examine the students' perceptions of the gender appropriateness (masculine, feminine or neutral) of basketball and volleyball.

3. To gather insight from students and teachers on their impressions of the effect of class type on self-confidence levels.

Hypotheses

Because very little literature exists on the differences in self-confidence levels of students in a coeducational class versus a single-sexed class, it is difficult to hypothesize without relying on intuition. However, by using the supportive literature that does exist (Lirgg, 1993), it was hypothesized that:

1. Boys in the coeducational class would exhibit higher levels of self-confidence than boys in the single-sexed class.

2. Girls in the coeducational class would exhibit lower levels of self-confidence than girls in the single-sexed class.

3. Boys in the single-sexed class would exhibit higher levels of self-confidence than girls in the single-sexed class.

4. Boys in the coeducational class would exhibit higher levels of self-confidence than girls in the coeducational class.

5. Boys and girls would perceive both basketball and volleyball as neutral tasks.

## Operational Definitions

Sport self-confidence. Sport self-confidence is defined as "the belief or degree of certainty individuals possess about their ability to be successful in sport" (Vealey, 1986, p. 222).

State Sport self-confidence. State Sport self-confidence is defined as "the belief or degree of certainty individuals possess at one particular moment about their ability to be successful in sport" (Vealey, 1986, p. 223).

## Limitations

1. This was a quasi-experimental design. The sample was not truly a random sample as intact classes participated in the study.
2. Only one measurement of self-confidence was taken.
3. Only one grade from one school was researched.
4. The self-confidence measure was not accurate if participants were not honest.
5. With any repeated measures design study, participants can become familiar with the study. Therefore, answers may not be reflective of the students' state of self-confidence.

## METHODS AND PROCEDURES

This study employed a quasi-experimental pretest/posttest design to examine the self-confidence of secondary school boys and girls participating in coeducational and gender separated physical education classes. Quasi-experimental designs are commonly used in educational studies as these settings best represent a real world setting and allow for greater generalizability of results (Thomas & Nelson, 1995). Focus groups and individual interviews were also conducted to assess student and teacher impressions of the effects of class type on sport self-confidence.

### Participants and Setting

#### Students

The sample for this study included two groups, one female group and one male group, of grade 10 students. The female class consisted of 30 students ranging from 15-16 years of age, with the average age being 15.4 years. The male class consisted of 29 students ranging from 15-17 years of age, with the average age being 15.7 years. Both classes had a heterogeneous make-up with a variety of social, economic, academic, cultural and religious backgrounds. The students were randomly assigned to these classes by the school administration and were not manipulated in any way for the study. In addition to their separate gender classes, these students participated in a coeducational class where the two groups merged for a coeducational unit of instruction.

### Teachers

Each class was instructed by its respective teacher (females by the female instructor, males by the male instructor) during the single-sex unit of physical education, and both teachers taught during the coeducational unit of instruction. Both teachers were physical education specialists. The male instructor had 22 years of teaching experience and was 47 years of age. He had taught physical education throughout his career. The female instructor had been teaching for only 4 years and was 26 years of age. She had only been teaching physical education for five months.

### Setting

All participants attended the same large, multicultural, multiethnical, suburban high school in the outskirts of Montreal. The units of instruction in which the students participated included a coeducational volleyball unit and single sex basketball units. This pattern of instruction, single sex and coeducational, was part of the participants' regular curriculum at this particular school. These particular units of instruction were chosen because the activities are similar; both are team sports requiring team tactics and skills in all three learning domains: cognitive, affective, and psychomotor.

## Instrumentation

### Vealey's State Sport-Confidence Inventory

The participants of the study were required to record their self-confidence at "one particular moment in time," namely once at the completion of the single sex unit of

instruction and again at the end of the coeducational unit of instruction. Hence all participants were administered Vealey's State Sport Confidence Inventory developed by Robin S. Vealey (1986) (Appendix A). Vealey's State Sport Confidence Inventory is a 13 question instrument which measures state sport confidence (SC-state). To aid in the conceptualization of sport-confidence, Vealey perused the literature on self-efficacy, perceived competence, and performance expectancy. Sport-confidence was defined "as the belief or degree of certainty individuals possess about their ability to be successful in sport" (Vealey, 1986, p. 222). Sport-confidence may be separated into two constructs: a dispositional construct termed trait sport-confidence (SC-trait) and a state construct termed state sport-confidence (SC-state). SC-state is defined as "the belief or degree of certainty individuals possess at one particular moment about their ability to be successful in sport" (Vealey, 1986, p. 223).

Scoring of the State Sport-Confidence Inventory. Scoring procedures for the State Sport-Confidence Inventory (SSCI) are additive-the total score is the sum of all item responses. The scale is based on a high-low scale of sport-confidence. The SSCI uses a Likert scale ranging from 1 = low (confidence), 5 = medium (confidence) to 9 = high (confidence). With each question having a maximum value of 9, participants could have a maximum score of 117 points. Medium state sport-confidence respondents would average 45 points, while low state sport-confidence scores would be 9 points. Vealey (1986) found SSCI results for high school students to average 77.64 with a high of 117 and a low of 32.

Validity and reliability of the State Sport-Confidence Inventory. Vealey (1986) tested concurrent validity by correlating measures of related personality constructs with

the SSCI. SC-state and CSAI-2 (as cited in Vealey, 1986), Competitive State Anxiety Inventory, were positively correlated at .69. Internal consistency estimate, as measured by Cronbach's alpha coefficient was .95. The SSCI has been tested valid using high school students (Vealey, 1986), the same sample group that was used in this study. In addition, Gayton and Nickless (1987) used the scale to predict marathon performances. Their results supported the construct validity of the scale. The SSCI is therefore deemed to be valid and is an appropriate inventory to assess high school students' state sport-confidence.

Test-retest reliability coefficients represent the correlations between scores obtained from the same persons on different administrations of an inventory. Analyses of test-retest reliability are only appropriate for trait measures (Vealey, 1986). Hence there are no reliability reports for the SSCI.

Gender Appropriateness of Sport or Activity Questionnaire

Students were asked to rate the gender appropriateness of each sport in order to see if this had an effect on their self-confidence levels. Using a 5 point Likert scale, (1 being feminine type activities, 5 being masculine type activities). The students indicated their perception of each activity as being more masculine, more feminine or neutral (Appendix B). The purpose of rating the entire curriculum was that the students would not become focused on the two sports in this study, which could have skewed their answers. Reliability testing of the gender appropriateness data was conducted with a retest that utilized 10 females and 10 males.

Sport Specific Self -Confidence Questionnaire

In order to factor out the effects of the type of activity on the participants' self-confidence levels, the participants completed a self-confidence questionnaire on learning basketball and volleyball. This questionnaire (see Appendix C) was adapted from Fennema and Sherman's (1976) Mathematics Attitude Scales into basketball by Lirgg (1993). Only the "self-confidence in learning basketball" questions were implemented in this study. Lirgg's adaptation showed acceptable internal consistency using split-half reliability (.78) and coefficient alphas (.66) (Lirgg, 1993). The same questions were implemented in order to measure volleyball self-confidence by replacing "basketball" with "volleyball" throughout the questionnaire. In addition, Lirgg's original scale was adjusted from a 5-point Likert scale into a 9-point Likert scale to be consistent with the scoring of Vealey's State Sport-Confidence Inventory.

Interviews

Focus group and individual interviews were also implemented to assess student and teacher perceptions of what could affect students' sport self-confidence levels in physical education class.

Student focus groups. A focus group interview is a research technique conducted with a small group of people (typically 6-8 participants) with the objective of acquiring information on a specific topic (Patten, 1990). The aim of the focus groups was to capture the richer feelings, thoughts, emotions and perceptions of the participants. Their statements provided insight into the responses gathered from the quantitative questionnaires. All those students who volunteered were utilized in the focus groups.

The first group of interviewees, interviewed after the first unit of instruction, comprised two subgroups of girls (five and four girls, respectively) along with one group of boys (eight interviewees). The second group of interviewees, interviewed after the coeducational unit of instruction, consisted of a group of six girls and a group of six boys. There were three girls and two boys who participated in both sets of interviews.

The focus group interviews lasted between 20 and 40 minutes. The interviews were meant to be brief but informative, as it was the aim of the researcher to limit the amount of time absent from physical education class. All interviews were audio recorded and pseudonyms were utilized in order to maintain anonymity. At the beginning of each of the focus group interviews, the researcher asked each of the members of the group to state their perceived confidence in physical education class as high, medium or low. This was to aid the researcher in describing the distribution of the levels of perceived confidence in these focus groups.

Although there was some continuity to the questions presented to the students, it was the objective of the researcher not to persuade the interviewees and also to allow the interview to take some life of its own. Hence, not all questions were asked in all groups. The questions generally asked by the researcher can be found in Appendix D.

Teacher interviews. Lastly, semi-formal, one-on-one, audio recorded interviews, lasting approximately 30 minutes, were also conducted with each individual teacher. They took place during non-class time at the end of each unit of instruction. Therefore, each teacher was interviewed two times. Questions asked by the researcher can be found in Appendix E.

## Procedure

School administration, Parent's Committee, and Staff Advisory Board approval was obtained. The individual teachers verbally agreed to the research. Subjects and parents completed a signed written consent form prior to testing (Appendix F). Students were tested during their regular physical education classes, which were 50 minutes in length. They participated in a segregated basketball unit with their individual teachers and a coeducational volleyball unit led by both the male and female teachers. Each unit of instruction lasted for nine physical education classes, which is approximately one month. The research protocol was as follows.

### State Sport-Confidence Inventory Data Collection

At the beginning of class nine, during each unit, participants completed Vealey's State Sport Confidence Inventory (SSCI). Testing was executed at the end of each unit because the researcher felt that the students could best describe their sport self-confidence only at the completion of the unit.

### Gender Appropriateness of Sport or Activity Data Collection

This survey was done at the end of the single sexed basketball unit to negate any effects the coeducational class may have on the participants' beliefs of the gender appropriateness of sport. Also at this time, students completed a background questionnaire indicating their age, sport experience, and varsity sport experience (Appendix G). The completion of the above data required approximately 10-15 minutes.

The retest for reliability purposes was completed during the first class of the co-educational unit of instruction.

Sport Specific Self-Confidence Questionnaire

The sport specific self-confidence data, which was utilized as a covariate in the statistical analysis, was obtained during the first class of the unit of instruction following the respective sport (i.e., basketball or volleyball). The completion of this questionnaire required approximately 5-10 minutes. The researcher administered all of the above questionnaires in order to maintain consistency in the delivery of instructions.

Interviews

At the end of each unit of instruction, during the completion of the State Sport Confidence Inventory questionnaire, students who wanted to participate further in the research were asked to sign a paper that was passed throughout the class. These volunteers participated in a focus group interview during their next physical education class.

In summary, all 59 students answered both the SSCI and the Sport Specific Self-Confidence questionnaire two times. At the end of the basketball unit all students completed the Gender Appropriateness of Sport or Activity questionnaire. During the beginning of the class immediately following each of the basketball and volleyball units, all participants completed the corresponding Sport Specific Self-Confidence

questionnaire. During these same classes, the focus group interviews were conducted with those students who volunteered.

## Treatment of the Data

Student scores on the SSCI for each unit of instruction were recorded along with demographics, the students' perceptions of the gender appropriateness of each unit of instruction in the grade 10 curriculum and finally the results from the sport specific self-confidence questionnaire particular to each unit of instruction.

### State Sport-Confidence Inventory Data

Descriptive statistics were computed for each class type, single-sex and coeducational. The scores from the sport specific self-confidence measures were subtracted from the State Sport-Confidence scores (B. Bracewell, personal communication, July 15th, 1999; M. Hoover, personal communication, March 28th, 1996). The purpose of this was to remove any affect of the specific sport self-confidence on State Sport Self-Confidence of the participants. An analysis of variance was implemented on the resulting scores. The design involved one between factor, gender, and one within factor, the repeated factor class type (single sex and coeducational classes). Using an adopted alpha level of .05, computations included analysis for:

1. the effect of gender on State Sport Confidence scores (between subjects effects)
2. the effect of class type on State Sport Confidence scores (within subjects effects)

3. the effect of the interaction of gender and class type on State Sport Confidence scores (between-within effects)

Gender Appropriateness of Task Data

The Likert scores for the two activities being studied were compared using a t-test in order to recognize any significant gender differences in the perception of gender appropriateness of the two activities being compared. The reliability of this questionnaire was observed with a reliability co-efficient.

Interview Data from Students and Teachers

Student and teacher audiotaped interviews were transcribed and coded into themes. Responses to questions proposed by the researcher to the students and teachers as well as other themes that emerged during the interview process, described their perceptions regarding things and people that affect self-confidence in physical education.

# RESULTS

The purposes of this study were to determine the effect of class type (single sexed or coeducational) on secondary school students' levels of self-confidence in sport, to examine the students' perceptions of the gender appropriateness (masculine, feminine or neutral) of basketball and volleyball, and to gather insight from students and teachers on their impressions of the effect of class type on self-confidence levels. Specific hypotheses were:

1. Boys in the coeducational class will exhibit higher levels of self-confidence than boys in the single sex class.
2. Girls in the coeducational class will exhibit lower levels of self-confidence than girls in the single sex class.
3. Boys in the single sex class will exhibit higher levels of self-confidence than girls in the single sex class.
4. Boys in the coeducational class will exhibit higher levels of self-confidence than girls in the coeducational class.
5. Boys and girls will perceive both basketball and volleyball as neutral tasks.

This section will present the relevant descriptive statistics and results of the ANOVA on the SSCI data, along with a t-test analysis and reliability testing of the gender appropriateness of sport or activity data. Finally, student and teacher perceptions of the effects of class type on sport-self-confidence will be shown.

Descriptive Results

Upon analyzing the data of all 59 participants, one outlier was detected and removed from all analyses. The outlier, a female participant was removed based on the removal score of ±3 standard deviations from the mean. The total number of participants was therefore N=58, 29 females and 29 males. Below, in Table 1, are the means and standard deviations of the same male and female students in the two types of classes under investigation.

Table 1. Means and Standard Deviations for SSCI Inventory Scores Across Gender

| Gender | Single Sex Class (test 1) | | Coeducational Class (test 2) | |
|---|---|---|---|---|
| | Means | SD | Means | SD |
| Female | 84.7 | 14.0 | 87.1 | 19.2 |
| Male | 91.1 | 14.7 | 96.3 | 13.8 |

Table 1 shows the females had lower scores (84.7, 87.1) than the males (91.1, 96.3) in both class types, and there was an increase in scores from single sex classes to coeducational classes for both females and males. The boys exhibited higher levels of State Sport Confidence than girls in both types of classes. Vealey (1986) discovered average scores of high school students to be 77.6 with a standard deviation of 17.9. Therefore, both the male and female participants in this study hold above average SSCI scores in both single-sex and coeducational settings.

The sport specific self-confidence scores were subtracted from the State Sport-Confidence scores resulting in a final score. These scores are shown in Table 2.

Table 2. Means and Standard Deviations for SSCI Inventory Final Scores Across Gender

| Gender | Single Sex Class (test 1) | | Coeducational Class (test 2) | |
|---|---|---|---|---|
| | Means | SD | Means | SD |
| Female | 15.8 | 9.1 | 17.8 | 9.7 |
| Male | 20.4 | 12.7 | 19.7 | 10.2 |

Analysis of Variance

The final score mean differences were tested for significance. A univariate repeated analysis of variance was applied to the final scores. The resulting ANOVA is shown in Table 3.

Table 3. Analysis of Variance of Effects of Gender and Class Type on SSCI Scores

| Source of Variation | Sum of Squares | df | Mean Square | F-Ratio | P |
|---|---|---|---|---|---|
| Between Subjects | | | | | |
| Gender | 311.21 | 1 | 311.21 | 2.14 | 0.13 |
| ERROR | 8157.93 | 56 | 145.68 | | |
| **Source of Variation** | **Sum of Squares** | **df** | **Mean Square** | **F-Ratio** | **P** |
| Within Subjects | | | | | |
| Class type | 12.45 | 1 | 12.45 | 0.17 | 0.69 |
| Class type *Gender | 49.79 | 1 | 49.79 | 0.66 | 0.42 |
| Error | 4230.76 | 56 | 75.55 | | |

This analysis looked at differences of average State Sport Confidence scores (after subtracting the sport specific scores) due to gender, class type or a combination of these factors. Results displayed in Table 3, showed no significant effects. That is, SSCI scores of boys and girls and SSCI scores of students in single-sex and coeducational classes in this study did not differ significantly, contrary to what had been predicted. Hypotheses 1-4, were not supported.

## Gender Appropriateness of Task

In order to establish reliability for this questionnaire a Pearson product moment correlation was applied to twenty randomly chosen test-retest scores (10 male, 10 female results). The result was a high correlation (.83) implying reliability.

Although there were significant differences between males and females in the impression of the appropriateness of other activities in grade 10 physical education class, this was not the case with the two sports being researched, basketball and volleyball. See Table 4 and Table 5 below.

Table 4. Gender Appropriateness of Basketball Scores

| Gender | Mean | Standard Deviation |
|---|---|---|
| Female | 3.172 | 0.384 |
| Male | 3.310 | 0.660 |

**T-Test** **T=0.972** **df = 45** **Prob = 0.336**

Table 5. Gender Appropriateness of Volleyball Scores

| Gender | Mean | Standard Deviation |
|---|---|---|
| Female | 2.897 | 0.489 |
| Male | 3.034 | 0.421 |

**T-Test** **T=1.151** **df = 54.8** **Prob = 0.255**

Although the means between males and females are slightly different in each activity, they are not significantly different. All the means lie very close to 3.0. Hence, students see basketball and volleyball as gender neutral tasks, as predicted in Hypothesis 5.

## Teachers' and Students' Perceptions

Comments from the students and teachers fell mainly into four categories: group division by ability in physical education class, the physical education teacher's role in improving students' sport self-confidence, how others affect students' sport self-confidence, and how curriculum affects sport self-confidence. The last section presents additional teacher perspectives that deal mainly with the coeducational unit of instruction.

All students who volunteered were used in the focus groups. The researcher had been a substitute teacher at this high school for five years, so she was familiar with many of the students and they were familiar with her. For this reason, she felt that the students were more open and frank in their focus groups than they would have been with an interviewer unknown to them.

Students were asked at the beginning of each interview to rate their own sport self-confidence level. Table 6 displays the perceived confidence levels of the students who participated in the interview sessions.

Table 6. Self-Stated Confidence Levels of Interviewed Students

**Interview One: After Basketball Unit**

| *Females* *Confidence Levels* *Group 1* | *Females* *Confidence Levels* *Group2* | *Males* *Confidence Levels* *Group 1* |
|---|---|---|
| Jessica = low | Brenda = med | Albert = med |
| Amanda = low | Nicole = med | Mike = med |
| Mona = med | Marisa = high | Simon = high |
| Norma = med | Susan = high | Frank = high |
| Sherri = high | | Jack = high |
| | | Cam = high |
| | | Dino = high |
| | | Bob = high |

**Interview Two: After Volleyball Unit**

| *Females* *Confidence Levels* | *Males* *Confidence Levels* |
|---|---|
| Christine = med | Bruce = med |
| Janet = med | Tom = med |
| Linda = med | Jatinder = high |
| *Brenda = med | Anoop = high |
| *Marisa = high | *Dino = high |
| *Susan = high | *Bob = high |

*denotes a repeat interview

Group Division by Ability in Physical Education Class

Two major factors seem to support the notion of dividing students by ability in physical education class. Teachers and students both felt that if students were divided by ability, they would feel more comfortable in their working environment and they could

make a significant contribution to their group. These two factors would lead to improved sport self-confidence.

Comfort. Comfort, as discussed in this research, might be defined as "being comfortable enough with your ability level, within a group, to participate in physical education class". The results of the interviews suggest grouping students by ability leads to increased comfort and improved sport-self confidence in physical education class. Discussing the coeducational unit of instruction, Dan, the male physical education teacher, stated:

> We allowed them to pick a partner for a lot of the paired drills. That way they were picking someone they were comfortable with. Many cases it was someone at the same level of ability as them, so they were not embarrassed in any of the drill situations (Dan, 9-1).

Dan felt that it was important that the "students have control over their place in phys-ed class, who they're playing with, or what space on the floor they are taking up" (9-6).

It was obvious to the female physical education teacher, Brenda, that when she divided the students by ability there was "much more, a lot more (participation). Like from doing nothing to actually running, doing something the whole period. (Because) they're all with people they feel comfortable with" (3-7). Brenda did have concerns about the comfort of the girls prior to the co-educational unit:

> I don't think anybody is afraid to be laughed at (in a singled sex class). I don't think there is a fear but there might be in the boy's class. Are there guys in there that are going to laugh at them (the girls) (3-9)?

Only the female students commented on the comfort level in physical education class. Their comments contradicted what the teachers reported. The majority didn't see a need for group division by ability in order to feel comfortable in single sex physical education class. They perceived their single sex class environment as equal, respectful, and unintimidating. Most of the females agreed that the girls in their class "shouldn't feel dumb about trying something" (Susan, 2-8). Such comments as "there is no one that will really show off or act better than anyone" (Susan, 2-3), and "you don't feel embarrassed when you try something" (Susan, 2-5), illustrate these ideas.

One issue that is of particular interest is the behavior of the higher confidence athletes in the female single sex class. Susan commented, "(the higher confidence athletes) they encourage you, and they want you to try too" (2-5), and "no one is going to make fun of you, even the best people like Marisa and Teresa" (2-8). Two higher confidence female athletes, reflected these ideas with statements such as "in life everyone's the same" (Sherri, 1-7), and "I consider everyone equal no matter what they say" (Marisa, 2-3). However, one lower confidence female student disagreed with the perceptions of the majority of the females:

> I think lots of people in gym class, they tried to show off at what they can do. If you go (to physical education class) the athletes are trying to show off, so they're doing really good, but you, you're trying to do the best that you can and it's not even half of what they are doing (Jessica, 1-7). I pretty much have always hated it (physical education class) because I've always felt like kind of low confidence. There's all the real good athletes and all that and then I'm like low (Jessica, 1-9).

The female teacher suggested that lower confidence students, such as Jessica, felt pressured to learn more quickly because the higher skilled (consequently higher confidence) students picked up on things so quickly (3-6). However, one student saw this situation as a challenge. Mona said "when I see someone really working or trying hard, well it makes me want to work, like try a little harder too, I guess" (1-8).

One student, with no prompting from the researcher, noted that the lack of intimidation or abundance of respect and equality in their physical education class couldn't be categorized as a "sex thing."

> I wouldn't put it as a sex thing. If there's boys in the class and you're comfortable fine. If the people are nice in your class... once you get comfortable with the class, as long as you get to know the people, act the right way, it doesn't matter if you're a guy or a girl or whatever. So our class is not intimidating, not just because there is not guys, because everyone is there just, it's for gym. You want to try it out, you want to see if you're good at this, you want to see if you can do it (Susan, 2-8).

Contribution to the class. Results showed group division by ability facilitates increased contribution to groups by the individual, resulting in increased sport self-confidence. Dan described his perception of contribution in physical education class:

> If a student thinks, 'I can influence the game, I can make the winning basket or whatever', he feels good about it. If they touch the ball, they make a basket, they're involved in the play, they feel part of the group. So he wants to get up to the top level of that group. It's an attainable goal for him. You put him in with the good group, he sees the kid going in a

making every basket. He just sort of says, 'I'm never going to be that good.' So he just turns off (5-2).

The better kid, he dominates the game, he just drives to the basket, he scores. He's getting his satisfaction, you know, because he's the best. Of course the poor guy who hasn't touched the ball, or the girl who hasn't touched the ball during the game, eventually they just don't even get involved with the game (5-4).

They want to feel that they can contribute to success of their team. If they are always the cause of their team losing, ultimately they are going to find a way to not play or be out of the game (9-1).

Brenda had originally made four teams of equal strength for her basketball unit because "that's what you do." However, her approach was quickly modified when some students requested a change in the team division:

> The lower skilled in basketball, a few of them asked to be together. They didn't want to be with... They wanted to be with the same (skill level) as them or lower. The class ended up getting broken up into two more average to low skilled (groups) to high, high (skilled groups). They didn't participate until that was done. I had originally made teams, five equal teams. They just kind of stood around, didn't do much. But when they asked me to split up like that, they were running around. They were actually hot and sweating at the end of the period (Brenda, 3-6).

A girl in Brenda's class explained why team division by ability is good:

> I hate also when they try to make the teams even and they put the athletes, the really good athletes, in with the not-so-good people to make the team

more even. But then the athletes pay attention only to each other and leave out the not-so-good players. I think you should take the people who are at the same skill level and put them against each other (Jessica, 1-11).

Jessica was the only female student to support group division by ability. However, nearly all the male students supported this idea. They perceived that group division by ability would increase contribution for both lower confidence and higher confidence students. In turn, all of the students would benefit. The higher self-confidence students wouldn't become frustrated with the less capable students. Comments about how the higher self-confidence students get frustrated with the students less capable than themselves included:

- "It aggravates the higher players a lot cause they can't play to their full potential" (Dino, 4-8).
- "The less talented, they'd take notice, seeing how the better players get frustrated with the fact that they're not as good as they are" (Albert, 4-9).

The lower self-confidence students would become more involved in the activity because they would feel more confident in their group. Comments about the benefits to lower self-confidence students included:

- "the people who never played basketball before had a chance to play at their level so they didn't feel discouraged playing against better people" (Frank, 4-7).
- "if you separate them where the people who have more experience on one side as compared to the people who don't, the people who don't

have a chance to 'ok like I'll run the plays now.' You know how everyone's, you know, more at the same level. It's more at the same level so it's easier to participate" (Jack, 4-8).

- "the other people who might not be as good, it boosts their confidence cause they're not worried about being put down by the better players" (Frank, 4-8).

One male student disagreed with group division by ability. When teams were comprised of mixed ability students Bob felt that you could get "more involved in the game," "the best players couldn't hog the ball" and "there was less of an all star team" (7-3).

Basketball versus Volleyball. The teachers suggested that the choice of balanced or mixed skilled team selection might be influenced by the sport. In the basketball unit, both the male and female students were divided by ability for competition. When explaining this decision, both teachers made the same comment independently of one another. Dan stated, "In basketball one player can dominate a game" (9-4). Brenda reiterated, "In basketball one person can carry a team" (8-3).

In contrast, volleyball is more of a co-operative sport by nature. Dan added:

"(in volleyball), a stronger player cannot play the ball on all three hits, somebody has to hit it in between. It certainly relies on 6 players on the court working together to accomplish something. The weaker player can improve a lot more because of his contact with a stronger player" (5-1). Both teachers stressed their perception of improvement in the female students' volleyball skills by the conclusion of the coeducational class.

Brenda felt that volleyball has a minimum skill requirement for a game to function properly. "If you can't bump...you have to have at least half the team that can" (8-3).

These results suggest that the best way to make teams or groups for practice or competition purposes is to divide the students into two tiers, a higher-skill level group and a lower-skill level group where students practice and compete within their skill levels. However, another factor that mediates team grouping is the sport the students are engaging in. It has been suggested that some sports need a minimum skill level in order for the sport playing to be somewhat functional. For example, in volleyball bumping is the minimum skill level required in order for the game to continue at a basic level.

The Teacher's Role in Improving Student's Sports Self-confidence

Both the teachers and students described the importance of the teacher's role in students' sport self-confidence.

Making the situation successful. Dan believed teachers can absolutely make an impression on how the student perceives him or herself:

> They have to create situations in the class, especially non-game situations, where the drills are not so difficult that the players can't do them. They've got to be fun things that the kid has success on. You're doing a drill, if the kid's doing it ten times, he doesn't have to do it perfect 10 times but if he can do it once or twice. If it's archery, he may miss the target 10 times out of 15 shots, but he gets that one shot that hit the bullseye, as far as he's concerned, 'hey, I've done it.' He forgets about the other ones (Dan, 5-5).

Dan added that teachers should make class competition a successful situation as well. He suggested setting up tournaments with a tier system so you don't have the best players playing the worst players. "The skill level may be very low in their game, but they are in the game and got the opportunity to win a game" (Dan, 5-3). Many of Dan's male students agreed that "success, winning and improvement" were key factors in improving self-confidence in physical education class.

Dan concluded that students need to be successful in evaluative situations in physical education class as well. "Is it fair to evaluate too harsh that they are going to fail the skill test, when maybe they came into the unit with no background in that sport" (Dan, 9-2)? This is the reason that Dan allowed students to have a retest on any skill test. Students supported Dan's notion. They felt if they put in effort but lacked the skills required in a test, the teacher wouldn't recognize their efforts. They also felt that evaluation of students wasn't consistent amongst all teachers, hence, they were uncertain as to how successful they would be in physical education class.

Feedback. Many students voiced their opinion about how important teacher feedback was in improving their sport self-confidence. Sherri said, "I think it's really important that you (the teacher) tell them how you feel and what they're doing good, cause I think that builds it (self-confidence in physical education class) a lot" (1-5).

An interesting point to note is that when the teachers were asked if they felt their feedback was factor in improving students' self-confidence, both teachers downplayed their role. During the first interview, the female physical education teacher didn't believe she was a factor in student's sport self-confidence. Her ideas changed after the

coeducational unit of instruction. She acknowledged that she could make an impact on students' self-confidence by "always pointing out the positive," or "taking them aside and mentioning, 'maybe you could do this'" (8-1). The male physical education teacher suggested that, although he could make an impact using positive feedback, the fellow student's feedback was much more influential on student's sport self-confidence.

Team selection. It has been discussed in the first section how important team or group division is in improving students' sport self-confidence. It would be appropriate then to take a brief look at how teachers' team choices affect students' sport self-confidence.

Although it has been long standing that allowing team captains to choose their teams publicly is not an appropriate method for team selection, evidently some teachers still implement this method. One student in this study shared her experiences with the researcher:

> Throughout my entire elementary school, like they always did it that way. Not necessarily was I the last person but I was close to last. I felt really crappy throughout all of elementary school (Jessica, 1-9).

Similarly, the female physical education teacher shared her hesitation about dividing the class by ability, "I didn't want to say you know, 'ok, all the people who can't play over here.' No teacher wants to do that" (Brenda, 3-7). Hence, Dan discussed his method of dividing teams by ability:

> I just sort of, pick a line on the floor, and I say, 'those of you who want to play with Sean,' if Sean is the better player, and can play in that level, 'you sit on that side of the line. Guys who don't, sit on the other side of the line.' Occasionally, you might not have a not an even match of numbers and you gotta say, 'ok, you're pretty good. I think you can play with them' (5-2).

Teaching style – discovery versus lecturing. The female physical education teacher was the less experienced teacher. She felt that she didn't have very much self-confidence. She explained that she wasn't a public speaker. She believes that her style of teaching, being the discovery approach, was more conducive to improving students' sport self-confidence than the lecturing style widely used in her department. "As they're playing, I'm still teaching. I still talk to them, 'you should've done that or try this.' They get a lot of play" (Brenda, 3-3). When asked about the effects of her style on self-confidence, she felt it should be a positive effect. "They get a lot of play. I'm not going to yell and scream if you do something wrong. They should be confident" (Brenda, 3-2).

The teacher's role in coeducational physical education class. It seems that the roles of the male and female teachers differed when it came to the coeducational physical education class. The female teacher felt her role was to try to make her "girls feel comfortable." When asked by the interviewer if she found that she interacted with the boys, she replied "I don't know if I had much of an impact on the boys really. I didn't really notice. I was concerned about the girls learning" (Brenda, 8-4). The female teacher described the male teacher as the disciplinarian. He ensured that equality was evident in the treatment of the students. Brenda gives an example of a situation in the class:

> Well, because he would lead the warm-up a lot and he'd have them... he'd say, 'girls you have 10 push ups, guys you have 20 push ups.' So the girls would do 10 and the guys would do 20. Then he'd say, 'girls you have 20 crunches, boys you have 10.' So he was really equal. It was good (8-4).

Others Who Affect Students' Sport Self-Confidence

All interviewees agreed that there are others, besides teachers, who affect students' sport self-confidence. The group found to have the biggest impact was classmates. The other group discussed was the students themselves.

Classmates. Unlike any of the other factors that were discussed, all interviewees agreed that classmates had a major impact on students' sports self-confidence. Twelve students replied that classmates or peers would have an effect on their self-confidence in physical education class. They suggested it could be either in a positive or negative manner by using either positive or negative feedback. "If you do well, they'll (classmates) tap you on the shoulder, they'll pat you on the back and say 'you did a good job.' But if you do wrong, they might not mean it but they'll say a comment like 'oh you suck'" (Dino, 4-5).

Both physical education teachers agreed that classmates' feedback was a major determinant of students' self-confidence in physical education class:

> I think the ultimate impact, you know if you are going to measure the impact of the teacher, as opposed to the impact of his peers, he's (the student) gonna value his peers acceptance or congratulations more than he is the teacher (Dan, 5-7).

Many of the students concurred. One lower self-confident student, Jessica, suggested that she would "feel more confident" and "rather play that game" (1-3) if a classmate gave her positive feedback.

Conversely, it would seem that negative feedback could be detrimental to the student's sport self-confidence. However, the results didn't totally support this statement. Generally, female students refused to admit the significance of negative feedback, while the male participants agreed on the negative effect that would result from this feedback. The females who responded this way were either medium or low self-confidence students. Jessica said "if someone was to say bad stuff I wouldn't care" (1-3). But Dino readily admitted, "after you've heard like 10 times 'oh you suck, you suck, you suck' that lowers your self-confidence whether you admit it or not" (4-5).

The female physical education teacher contradicted the perceptions of her female students. Brenda believed that, "other student's laughing or other students making comments about somebody, I don't think that happened, but that could influence whether someone tries or not" (8-1). The interviewer asked if she perceived that happened in the coeducational class. Her response was a definite "no."

The most interesting result from these interviews was the contrasting perceptions of the interviewees at the conclusion of the coeducational unit. As noted, the female physical education teacher who was concerned about her "girls feeling comfortable," reported that she saw nothing in the way of comments or gestures between classmates. The boys perceived it the same way. When asked if the coeducational class affected their self-confidence, five of the six boys concluded no. Jatinder stated, "I don't think it affected me. It was good, it was the same thing. There were more people" (7-2).

However, two boys stated two other different ideas. Bob thought it made him more confident because "there's more people, and the teams were more spread out, so all the good players were separated. I guess cause you're more involved in the game" (7-3). Dino, who reported that his confidence wasn't affected by the girls, suggested that "some people (boys) may have been affected by the fact it's girls and they wanted to look good and if they messed up... They were afraid to mess up cause they didn't want to look stupid in front of the girls" (7-6).

The girls perceived the coeducational unit quite differently from their teachers and their male counterparts. They found a tremendous difference in the two types of classes. After the single sex basketball unit, one girl reported that self-confidence was not affected by the gender make up of the physical education class. "I wouldn't put it as a sex thing, 'Oh well there's no boys in the class.' If there's boys in the class and you're comfortable, fine" (Susan, 2-8). Susan was a repeat interviewee. The second interview with the girls, after the volleyball unit, started with Susan's comments below:

> I find what can affect your self-confidence is people around you. Especially with the guys, cause a lot of the guys had problems with the girls. Oh, they all like 'Oh, you suck, Oh, my god, I can't believe she did that again.' Because the guys felt they were better. A lot of girls would walk into the dressing room and they'd be freaking out, they'd be so mad because the guys would make fun of them and say 'Oh, my god, she's such a girl, she sucks' (6-2).

When asked if they agreed with Susan, all of the other girls in the focus group responded with a resounding yes! The consensus from the females was that the boys wanted to

"take over the game" (Teresa, 6-2), they would "jump in front of the girls to get a ball" (Marisa, 6-2) and they only wanted to play amongst themselves.

The girls were then asked how they reacted to the behavior displayed by the boys?

- People stop trying. You don't care anymore. 'What am I handicapped? I can't play myself' (Susan, 6-3)?
- We were laughing and saying 'pose.' Just stand there and look pretty cause we couldn't do anything else (Teresa, 6-2).
- She (a fellow female classmate) finally stood up to them and goes 'how many people on the team are there, six or two'(Christine, 6-4)?

One student stated, "(some) girls don't really feel like playing volleyball anyways, but they tend to move away, give the better players the ball instead" (Marisa, 6-3). Another female student supported this statement by suggesting that "sometimes you think, he just thought he could get the ball, he's more in position for him to hit it" (Janet, 6-5). All of the females in this focus group felt that the resulting effect of this behavior would be a decrease in self-confidence and, similarly, they wouldn't want to participate. Ironically, one male student suggested "I think a lot of the girls, it didn't bother them being mixed with guys. But for the guys it's different" (Dino, 7-7). "They were afraid of messing up cause they didn't want to look stupid in front of the girls" (Dino, 7-6).

The students themselves. When asked who can affect your self-confidence in physical education class, four of the female students replied that they, themselves, can

affect their self-confidence level in physical education class, "It's me who affects my self-confidence" (Marisa, 2-5). None of the male students made this statement.

How Curriculum Affects Students' Self-Confidence Levels

It was discovered that the curriculum design of the high school could have an effect on the students' self-confidence. There were three main issues that surged to the forefront during the interviews: the type or category of sport taught in the physical education class, whether the students had previous experience in the sport or activity, and whether it was "their sport".

The type or category of sport taught in the physical education class. The male physical education teacher commented on two different ideas involving the choices of sports for curriculum at high schools. He commented on the use of "gross motor skill sports" versus "fine motor skill sports." This teacher perceived activities like badminton as fine motor skill sports. He suggested that "anyone can kick a ball" (5-5) such as in soccer. When it comes to more delicate skills similar to those in badminton, "the sport becomes more difficult for the majority of students to be successful at" (5-5). Hence, it was important to expose the students to both types of sports in order to allow every student to find success at something. As we know from previously reported results in this section, less success could result in less sport self-confidence.

Although both teachers suggested that team and individual sports could have an impact on self-confidence, neither could forecast exactly what form the effect would take. It may be that team sports bring down your self-confidence level because when you make a mistake not only your whole team, but another whole team sees your mistake. For

example, the female physical education teacher expressed that "in volleyball you can't hide because the ball comes to you, or when you serve it, you're really on the spot" (3-10). However, she continued with "I find there's more pressure on you in an individual sport. Like if I'm bad, I'm bad and I can't do anything about it" (3-12). She added that females prefer activities that are "easy, easy meaning less work, less running, less movement" (3-10).

Previous experience in the sport. According to both the students and the teachers interviewed in this study, experience with certain sports would affect sport self-confidence in physical education class. The interviewees suggested that, if the curriculum allows for new sports that no or few students have experience with, it will aid in building self-confidence in physical education class. Some students' comments included:

- "You just get better or whatever and you feel more confident" (Frank, 4-3).
- "It at least puts everyone at a similar level" (Jack, 4-3).
- "If you're playing golf, you've never played golf, there has to be room for improvement" (Dino, 4-3).

Success in an activity is a predecessor to more effort and persistence in that activity, which leads to improving skill and hence increased self-confidence (Harter, 1981). Hence, if these students are experiencing success, it can lead to improved sport self-confidence.

Past experience in sport was recognized as a factor in students' sport self-confidence. The female physical education teacher stated, if you were not good in a sport before, you will not feel confident about doing that sport a second or third time. You would go into the sport with a predetermined low self-confidence level. "They couldn't do it last year, so why should they be able to do it this year? If they can't serve by grade 10, they couldn't do it in grade 9. They couldn't do it in grade 8. They couldn't do it in grade 7" (8-6).

"Your sport." All interviewees agreed that if it was "your sport" you would have more confidence in class. If it was "not your sport," you really wouldn't care what happened, and, coincidentally, it wouldn't affect your self-confidence in physical education class. (This was the reasoning behind using the self-confidence rating in that sport as a covariate in the data analysis.) Students also felt that a variety of sports would "average things out." "Everyone gets their chance in a way" (Susan, 2-12), "a chance to be in the spotlight" (Teresa, 2-12).

Although not all students agreed, it was reported that if the activity was "not their sport," it would not affect their self-confidence in physical education class exactly because of that fact. "You don't have an interest in the sport, you don't really care ... if you're good at it" (Albert, 4-4).

## Additional Teacher Perspectives

According to the teachers, one of the goals of the coeducational unit of instruction was to "try to get them more sociable and being able to cooperate with the other gender" (9-1). Both teachers agreed that this objective was attained.

They also agreed that there was a positive correlation between students' participation and their self-confidence levels in physical education class. Dan explained:

> Kids who are very confident in the sport, they just want to play, play, play. They want to go full out. (A) kid who's not confident, he'll find a way of getting himself on the bench, getting him out of the classroom, volunteering to do things that are not related to the sport, whatever (5-5).

The male teacher seemingly contradicted the female teacher regarding to how the students were evaluated on their serving test. Dan responded that all the students were evaluated "with the same overall criteria." However, Brenda explained the female students "had to serve 2 overhand" out of 8 serves, while "the boys had to do 8 out of 8 overhand" (9-8).

Each teacher taught a number of different groups of grade 10 students who participated in coeducational volleyball. Both teachers observed differences among their groups. The male teacher observed the differences through the level of play. The class studied was his homeroom class. He suggested "one might wonder, "because that's a homeroom class and you have more contact with them because you meet them everyday, even if just for taking attendance, that they might be more reactive to some of the instruction" (9-5). The female teacher described class differences through the boys' behavior. "(In the) other class, some of the guys laughed. They were laughing, they were pretty obnoxious the first three classes" (8-2). This behavior was attributed to the tardiness of the male physical education of that particular class.

Summary

With the exception of hypothesis 5, the gender appropriateness of basketball and volleyball, the quantitative results from this study do not support any of the researcher's hypotheses. In addition, the qualitative results of this study do not seem support the quantitative results, which indicate that there are no differences in self-confidence between the students in the different class types. Hence, the issue that has risen is the controversy between these two sets of data.

# DISCUSSION

The purposes of this study were to determine the effect of single-sexed and coeducational classes on secondary school students' levels of self-confidence in physical education, to examine the students' perceptions of the gender appropriateness of basketball and volleyball, and to gather insight from students and teachers on their impressions of the effect of class type on self-confidence levels. This section will discuss the five research hypotheses. Student and teacher perceptions of what affects self-confidence in physical education class will be presented.

## Males' Self-confidence in Single-sex Versus Coeducational Classes

The first hypothesis was refuted. Males in the coeducational physical education class did not show significantly higher SSCI scores than males in the single sex physical education class and the qualitative results supported this notion. The majority of the boys' perceptions regarding the coeducational physical education class were the same. They felt the only difference between the coeducational and single-sex classes was the number of people, being that there were more people in the coeducational class. It is possible that if the boys didn't perceive differences between the two types of classes, then their self-confidence levels would represent that perception.

## Females' Self-confidence in Single-sex Versus Coeducational Classes

It was hypothesized that girls in single-sex classes would demonstrate higher self-confidence than girls in coeducational classes. Although the SSCI scores were not significantly different in the two situations, similar to Lirgg's (1993) findings, the interview data seemed to contradict this result, providing some support for the

hypothesis. The girls made observations and complaints after the coeducational unit of instruction regarding the boys' behavior. The female students' comments indicated that they were frustrated and this frustration may have impacted self-confidence even though it was not indicated through the SSCI results.

The qualitative results seem to suggest that the comfort level of the female students changed from the single sex unit of instruction to the coeducational unit of instruction. The males were portrayed as being physically dominant and verbally insulting, their behavior even bordered on harassment towards some of their female classmates. All females interviewed in this study agreed that the resulting effect of the boys' behavior would be a decrease in self-confidence. The change in the atmosphere or environment seemed to have a negative effect on the girls' perception of the physical education class.

These feelings of frustration have also been shown in other studies. Jaffe and Manzer (1992) used a focus group format to gain insight into some of the factors that are associated with diminished self-esteem. They discovered that when boys don't pass the ball or include the female students in the activity, the girls begin to question their ability in sports, and as a result, their self-esteem suffers. Results from a second study agreed with the findings from this study. Jaffe and Ricker (1993), again using a focus group format, had one participant explain, "even if you're right there, they won't pass you the ball" (p.23). Another said, "They just take over the whole thing and they don't give girls a chance" (p.23). These comments closely resemble remarks made by the females in this study. Barker (1998), in an anecdotal report, interviewed students and teachers from different coeducational high school classes throughout the Montreal region. Her results

included one student's comment, "It's intimidating to be with the boys" (p. F7). Another continued, "Girls never get to touch the ball. We participate more when the boys aren't there" (p. F7). Barker suggested the most disturbing aspect of the coeducational classes was the female students' prevailing feeling of inadequacy. Humbert (1995) found that not only did the boys push females to the sidelines or out of the way, but also that the girls understood and accepted this behavior from the boys. The females in this study were not found to be so accommodating. Some female students did react in this typical manner, however, others did not and voiced their disapproval to the boys.

All of the above studies support the notion that there are differences in females' perceptions of single-sex classes versus coeducational classes. The general classroom climate may play an important role in reinforcing gender differences in attitudes, beliefs and performances (Lirgg, 1993). That is, regardless of the differences that are being perceived by the girls, these differences will have an effect on their attitudes, beliefs and performances. Therefore, the issue of concern may not be reflected by direct self-confidence measures but more by the environment or climate that affects self-confidence.

Jaffee and Manzer (1992) may have an answer to why the quantitative results didn't support the girls' thoughts. They explained that the difference between data collected from a questionnaire and information gathered in a focus group may be due to a number of factors. The girls may have felt that a setting amidst other girls was a safe place to voice their frustrations. Perhaps after one girl spoke of her experiences, other girls were willing to voice similar experiences. Finally, it is possible that it was difficult for the girls to write about gender-based barriers in a questionnaire format. This study was representative of all of these thoughts. All of the females seemed to feel safe and

expressed themselves in the interviews without hesitation after the initial student's confession regarding the effects of the boys' behavior in the coeducational unit. It is the researcher's contention that the reason for the inconsistency between the qualitative and quantitative results is due to the reason stated above by Jaffee and Manzer (1993). The questionnaire was not capable of sharing the true thoughts and expressions of the female students in this class.

In addition, these girls were found to have above average self-confidence levels (Vealey, 1986). Hence, it may have been more difficult for the class type to have an impact on their self-confidence levels, as measured by the SSCI, because they felt quite stable and secure. However, it is evident from the qualitative results that the coeducational unit was a somewhat negative experience. The above average female SSCI scores may also partially explain some of the girls' behavior: they stood up to the boys when they felt they were being mistreated during the coeducational unit of instruction.

Therefore, it is suggested that the consistency of the females' sport self-confidence, as measured by the SSCI in this study, was not due to class type but rather due to time. That is to say, the females maintained self-confidence because they were further into the school year and their physical education program, which had a positive influence on their confidence.

A second possibility for the consistency in girls' self-confidence in the coeducational unit may be that girls measure their self-confidence differently than boys (Duda, 1992; Duda & Allison, 1990). Some females rise to the challenge of the presence of boys in their class, will even try harder, and try to prove the boys wrong (Jaffee &

Ricker, 1993). If the females in this study measured self-confidence on effort, and the effort produced in each class type was similar or even increased in the coeducational class due to the presence of the boys, then self-confidence levels would be maintained.

Barker (1998) found conflicting male-female responses in her interviews. The boys in her study denied making derogatory comments about the girls. The girls felt, from the boys' comments and actions, that the boys thought they were better than the girls. In this investigation, when qualitative results of the male students were compared to the female students, there was an obvious disparity. The majority of the boys felt there were no differences in the classes. The classes were just bigger. The females, as previously stated, found many differences in the coeducational class, including the behavior of the boys.

Males' Self-confidence Versus Females' Self-Confidence in Single-sex and Coeducational Classes

It was expected that boys in single-sex and coeducational classes would show higher levels of self-confidence than girls in these classes. The results tended in the direction indicated but did not reach a level of significance. The female physical education teacher stated that this particular female physical education class included a lot of athletes. As previously indicated, the SSCI results support the notion that the females' self-confidence levels in this study are above average and also that the boys' perceptions of both class types were similar. Again, this would suggest that, because these female students were athletes with a higher average self-confidence score, their scores would remain stable. The boys' similar perceptions would support stability of their scores as

well. Therefore, it would be difficult to discover significant differences in self-confidence levels between the two groups.

The Effect of the Gender Appropriateness of Basketball and Volleyball on Self-Confidence

The gender appropriateness of basketball and volleyball was supported: all students generally perceived both basketball and volleyball to be gender neutral activities. Lirgg's (1991) meta-analysis explained that a task that is judged to be more masculine than another task will produce greater gender differences in self-confidence. Gill (1992) noted when (a) tasks are perceived as appropriate for females, (b) females and males have similar experiences and capabilities, and (c) clear evaluation and feedback are present, females and males display similar levels of confidence. Hence, these results also help explain the non-support of the earlier hypotheses. These female students did not perceive either of these tasks as gender specific (i.e., masculine). It is possible the students had similar experiences and capabilities, and clear evaluation and feedback was present. Hence, the males and females showed similar self-confidence rates.

Lirgg (1991) also suggests gender differences in self-confidence favouring males may be due to a possible bias in previous research. For example, research has generally ignored feminine type tasks and has used questionable sex typing of task practices. These practices may also have contributed to appearances of these gender differences. This could partially explain the results from this study. The students themselves sex-typed the tasks and they found the tasks, both basketball and volleyball, to be gender

neutral. Therefore, according to Lirgg's ideas, it is less likely to observe gender differences in self-confidence.

Additional Findings

Grouping by ability seems to have different effects on males and females. The females suggested that it was not necessarily needed or wanted in their single-sex class, but the males disagreed. Does this again have to do with their measure of success? Girls, being more effort and fun oriented, may see less need to be competitive in physical education class. The boys, on the other hand, tend to have a very competitive nature, and, thus, anything that impedes on that competitiveness would hinder their sport experience and their sport self-confidence. As indicated earlier in this study, comfort and contribution are needed in a group in order to be self-confident. If the boys don't feel that they are contributing one hundred percent to their group, it may alter their self-confidence.

Ironically, the students in the basketball and volleyball units were not divided by ability in the same way. Barker (1998) suggests, as did the teachers in this study, that some sports will bring out the worst in the battle of the sexes. Basketball was mentioned as an opportunity for boys to dominate play, which was the same reason the teachers in this study gave for not choosing basketball as a coeducational unit. The female physical educator discussed the notion of group division by ability in the coeducational class. She stated that maybe four or five of her best girls would be able to play with the boys. Maybe four or five of the lower skilled boys would play with the girls. It would almost be a gender segregated class. It was suggested by other physical educators that "about

one in 10 girls in the school, most of them who are accomplished athletes, prefer to play with the boys" (Barker, 1998, p. F7). The question remains, if the students were divided by ability, would the boys still jump in front of the females for the ball?

This study supported the suggestion that the teacher is a factor in establishing student self-confidence. Although they may not realize or admit their significance in formulating students' sport self-confidence, they play a big role in this process. Humbert (1995) recommended teachers of physical education should be encouraged to actively monitor the interactions between young men and women in their classes. The disparity between the perceptions of both of the teachers and the female students in this study supports Humberts' recommendation. If the teachers are more aware of the potential problems and past perceptions of their students, they may find more active monitoring would improve the environment of their physical education class.

Curriculum will change how a student feels about him or herself. This was the basis for factoring out this variable from the data. It seems that the most important issue could be the students' past experience or lack of experience in the sport. The results of this study suggest that activities in which few students have experience will enable all students to start at similar skill levels and therefore similar self-confidence levels.

Summary

The conclusion of this study seems to be congruent with many other studies discovered in the literature. Although there seemed to be an effect of the environment on the students' self-confidence, it was not shown in their SSCI scores. It is suggested that the environment cannot be measured with the SSCI scores, and the resulting self-

confidence levels in different types of environments may not be reflected through the SSCI scores. However, the students, particularly the girls, recognize that the environment affects their feelings about physical education and their perceptions of self-confidence. Humbert (1995) concluded that if we are going to change physical education programs in order to encourage young women to be physically active, we must listen and act upon the information they share with us regarding different types of physical education programs, including single-sex or coeducational classes. Research continues to share similar ideas regarding the negative perceptions of females in coeducational physical education classes. However, the implementation of change and improvement to these programs is not evident.

Lirgg (1991) contends that with increasing opportunities for girls and women in sport, one would expect gender differences in self-confidence to slowly disappear. She also states there is a need to convey the belief that sport is for all, it is not the domain of one gender or more proper for one gender (Lirgg, 1992). Hence, it is possible that if these beliefs are conveyed, males and females can hold similar self-confidence levels. It is probable that the females who participated in this study hold similar views as Lirgg.

## RECOMMENDATIONS

Based on this study's results, limitations and related research findings, recommendations for further research include:

1. Conduct a similar study, but add another factor, namely self-perception of skill, in order to analyse the students' perceptions of self-confidence related to their perceptions of skill levels in order to answer the question how ability interacts with class type and gender.
2. Determine if there is a significant relationship between students' perceived abilities and their preference for single-sex or coeducational class types.
3. Continue to use qualitative data collection in similar studies as there seems to be a discrepancy between quantitative and qualitative results, quantitative results may not share the true perspectives of students.
4. While using qualitative data collection, continue to utilize gender segregated focus groups in order to allow students to speak freely.
5. Use a climate or environmental measurement tool to study relationships between class climate and self-confidence.
6. Continue to use dependent sampling, however, implement different order effects to these groups in order to negate any recency effect.
7. Continue to use the self-reported gender appropriateness style when determining the gender appropriateness of the tasks or activities in sport.
8. Use feminine type tasks as well as other types of sports, namely individual, when measuring self-confidence.

9. More research should be directed towards the behavior of teachers in single-sex and coeducational settings. Are their delivery systems the same for both types of classes? Are males and females taught differently?

Suggestions and recommendations to physical educators include:

1. Physical education teachers must monitor their students more closely in physical education classes, especially coeducational classes, as there is an obvious discrepancy between the students' perceptions and the teachers' perceptions of these classes.
2. Continue to use new sport experiences with students in order to give the lower confident students a more equal playing feel.
3. Continue to convey the belief that sport is for all, not the domain of one gender.

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# Appendix A

Male/Female (please circle one)

Birth Date(Year/Month/Day)_____

## STATE SPORT-CONFIDENCE INVENTORY

Think about how confident you feel right now about performing successfully in this unit of instruction.

Answer the questions below based on how confident you feel right now about performing successfully. Compare your self-confidence to the most self-confident athlete you know.

Please answer as you really feel, not how you would like to feel. Your answers will be kept completely confidential.

HOW CONFIDENT ARE YOU RIGHT NOW ABOUT PERFORMING SUCCESSFULLY IN THIS UNIT OF INSTRUCTION? (circle number)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. Compare the confidence you feel right now in YOUR ABILITY TO EXECUTE THE SKILLS NECESSARY TO BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 2. Compare the confidence you feel right now in YOUR ABILITY TO MAKE CRITICAL DECISIONS DURING COMPETITION to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 3. Compare the confidence you feel right now in YOUR ABILITY TO PERFORM UNDER PRESSURE to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 4. Compare the confidence you feel right now in YOUR ABILITY TO EXECUTE SUCCESSFUL STRATEGY to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 5. Compare the confidence you feel right now in YOUR ABILITY TO CONCENTRATE WELL ENOUGH TO BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 6. Compare the confidence you feel right now in YOUR ABILITY TO ADAPT TO DIFFERENT COMPETITIVE SITUATIONS AND STILL BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |

HOW CONFIDENT ARE YOU RIGHT NOW ABOUT PERFORMING SUCCESSFULLY IN THIS UNIT OF INSTRUCTION? (circle number)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7. Compare the confidence you feel right now in YOUR ABILITY TO ACHIEVE YOUR COMPETITIVE GOALS TO BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 8. Compare the confidence you feel right now in YOUR ABILITY TO BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 9. Compare the confidence you feel right now in YOUR ABILITY TO THINK AND RESPOND SUCCESSFULLY DURING COMPETITION to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 10. Compare the confidence you feel right now in YOUR ABILITY TO MEET THE CHALLENGE OF COMPETITION to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 11. Compare the confidence you feel right now in YOUR ABILITY TO BE SUCCESSFUL BASED ON YOUR PREPARATION FOR THIS UNIT to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 12. Compare the confidence you feel right now in YOUR ABILITY TO PERFORM CONSISTENTLY ENOUGH TO BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |
| 13. Compare the confidence you feel right now in YOUR ABILITY TO BOUNCE BACK FROM PERFORMING POORLY AND BE SUCCESSFUL to the most confident athlete you know. | Low 1 | 2 | 3 | 4 | Medium 5 | 6 | 7 | 8 | High 9 |

# Appendix B

Please Circle One

Male/Female Birthday (year/month/day)

____/____/____

**Please indicate how you feel about the appropriateness of the following activities. Are they appropriate for females? Are they appropriate for males? Or are they neutral, which means they are appropriate for both males and females.**

**Gender Appropriateness**

| | female appropriate | | neutral | | male appropriate |
|---|---|---|---|---|---|
| Archery | 1 | 2 | 3 | 4 | 5 |
| Badminton | 1 | 2 | 3 | 4 | 5 |
| Basketball | 1 | 2 | 3 | 4 | 5 |
| Field Hockey | 1 | 2 | 3 | 4 | 5 |
| Handball | 1 | 2 | 3 | 4 | 5 |
| Soccer | 1 | 2 | 3 | 4 | 5 |
| Softball | 1 | 2 | 3 | 4 | 5 |
| Weight Training | 1 | 2 | 3 | 4 | 5 |
| Volleyball | 1 | 2 | 3 | 4 | 5 |

# Appendix C

Please Circle One

Male/Female Birthday (year/month/day)

____/____/____

CONFIDENCE IN LEARNING BASKETBALL SCALE

1. **Generally I confident about attempting skills in basketball.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

2. **For some reason even though I practice basketball, it seems really hard for me.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

3. **I am sure that I can learn basketball skills.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

4. **I think that I could handle more difficult basketball skills.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

5. **I have a lot of self-confidence when it comes to basketball.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

6. **I'm no good in basketball.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

7. **I'm not the type of person to do well in basketball.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

8. **I can do well in basketball skill tests.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

9. **Some sports I can handle ok., but I usually mess up basketball.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

10. **Basketball has been my worst sport.**

strongly disagree strongly agree

1 2 3 4 5 6 7 8 9

# Appendix D

Questions generally asked in the student focus group interviews included:

Interviewer stated:

Please keep in mind that during this interview we are discussing how you feel right now about performing successfully in sport.

1. What do you feel improves your self-confidence in sport?

2. What could you do personally to improve your self-confidence in sport?

3. Who do you think affects your self-confidence in sport, for example, your teacher, your friends, your classmates, your parents? How?

# Appendix E

Questions generally asked in the teacher interviews included:

Interviewer stated:

While answering these questions, please keep in mind they are based on the previous unit of instruction.

1. What factors do you see that improve students' self-confidence in sport?

2. How are students' self-confidence in sport levels improved?

3. Do people play a role in improving student self-confidence in sport? If so, how?

4. Do other things such as curriculum play a role in improving student self-confidence in sport? If so, how?

# Appendix F

## PARENTAL CONSENT FORM

January 1997

Dear Parents/Guardians

The students in Mr. Dan's and Ms. Brenda's Grade 10 classes at _____ High School have been selected to participate in a study to examine differences in single-sex and coeducational physical education classes. A short questionnaire/survey will be administered to the students by a researcher in a physical education class period during the regular school day. Students are not required to put their names on the questionnaires and may withdraw at any time should they choose not to participate. Students who wish to further participate in the study can volunteer to participate in audio recorded interviews. Pseudonyms will be used in order to maintain anonymity of the participants. The questionnaires and audiotapes will be observed only by the researcher.

This project has received permission and support from _____ Administration and McGill University.

Please indicate your consent by signing below and returning this form to the school tomorrow. If you have any questions relating to this study, feel free to call me at (486-6355). Your co-operation is greatly appreciated.

_____
(Principal)

K. Morrison
(Master's student
McGill University)

I give permission for my child _____ to participate in the above study.

Signature of Parent or Guardian _____

Signature of Student _____

Date _____

# Appendix G

Demographic Information

Please fill out the form below.

Age

Please indicate your sport experience in basketball and volleyball.

Please indicate your interschool experience. ie What teams at _____ _____ have you competed against other schools?