The Effects of Single-Sex and Coeducational Environments on the Self-Efficacy of Middle School Girls

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(ABSTRACT)

The purpose of this study was to investigate the effects of class type, coeducational or same-sex, on the self-efficacy of middle school girls in a unit of volleyball. Four intact certified physical education specialists from two Middle Schools were used in the study. All of the teachers were female. In two of the classes, students were split out according to gender with males being taught by one instructor and the females being taught by the other instructor. For the coeducational classes, the students were randomly assigned to either of the teachers, with boys and girls evenly divided between the two classes. Essentially two new classes were created at each school. Quantitative and qualitative methods were used for the study. Two questionnaires were administered to the students. Analysis of data from the questionnaire showed the student variables that were measured quantitatively for determining girls' self-efficacy for learning volleyball were found to be significant at the 05 level, favoring girls in single-sex environments. Data from the post-intervention questionnaire and student and teacher interviews were analyzed to provide insight into student preferences for these contexts. It is concluded from the qualitative data that single-sex classes have a more supportive learning environment, and have better conduct than coeducational classes.

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CHAPTER 1

Introduction

In 1972, Title IX of the Educational Amendment Act was passed to attempt to provide equal access for girls and boys to all aspects of the school curriculum, to eliminate sex discrimination within American educational institutions, and to achieve gender equity. It was the first law aimed at prohibiting discrimination on the basis of gender and guaranteeing equity in federally funded schools, colleges and universities – any institution that received federal funding was required to not discriminate on the basis of gender in the provision of any educational programs or activities.

With the advent of Title IX, coeducational physical education classes emerged in the public schools. School districts were barred from offering single sex classes, programs and activities, except for contact sports or sex education (U.S. Dept of Education, 2003). In light of this move towards a gender-integrated physical education environment over the past 30 years, some practitioners in the field still resist this configuration. The underlying assumption of Title IX was that once equal access was provided to the same instruction for girls as for boys, an increase in both the skill level and physical aspiration of females would follow (Vertinsky, 1992). Some argue that there appeared to be little thought or planning regarding the implications that coeducation physical education would have on the learning environment for adolescent girls (Monagen, 1983). So the debate begins as to whether girls in reality have equal chances to succeed in this environment. Sadker and Sadker (1994) state that given the nature of adolescent girls, one might question the decision to place them in coeducation physical education environments.

Physical educators have always believed that physical activity is an important agency that develops the person in a desirable way. It is believed that all adolescents

can learn motor skills, develop self-esteem, maintain health and fitness, and develop positive social skills through a variety of alternative modes and physical activities (Martens, 1975). Donna E. Shalala, Secretary of Health and Human Services, states "The year 1996 marked a breakthrough in our understanding of the benefits of physical activity and health for all Americans. With the publication of the first Surgeon General's Report on Physical Activity and Health, we have clearly documented the fact that men and women of all ages can improve the quality of their lives through a lifelong practice of regular moderate physical activity" (The President's Council on Physical Fitness and Sports Report, 1997, p.1). However, physical activity patterns of females during adolescence show there is a great drop in participation during this time (Godin & Shephard, 1986). According to the CDC (2002) girls are significantly less likely than boys to participate regularly in vigorous physical activity and on sports teams. Among school students in 2001, 57 percent of girls participated regularly in vigorous physical activity compared with 72.6 percent of boys.

Adolescence, a time of dramatic change, is one of the most difficult times in the life of a young girl. During this time, girls are very focused upon themselves. Adolescence represents a dynamic, developmental period when girls make important choices about life-style behaviors, including diets, physical activity, sexual activity, tobacco use, alcohol, and other drugs that can influence their health and well being throughout adulthood (The Office of Women's Health, 2004). During this time of growing up, adolescent girls undergo many physical, psychological and social changes that help them mature. Not only do they struggle with the issues of their bodies, minds, and relationships, oftentimes they struggle with the difficulties that occur within school environments.

Research indicates that adolescent girls experience genuine, substantial drops in self-esteem and self-confidence. Lowered self-esteem for girls is accompanied by a loss

of enthusiasm for math and science; a decline in performance on standardized science tests vis à vis boys, less confidence in their academic abilities, and fewer aspirations to professional careers.

According to a National Task Force on Young Females and Physical Activity (1988) females, beginning at an early age, under-value and underestimate their capacity (and potential) for competency in physical activity. As a result, a girl's competency in physical activity constantly falls further behind her male peers. She may select only activities that are traditionally female, or worse, be turned off to physical activity altogether.

There is good evidence to suggest that sport, active living, and physical education can have a positive effect on self-esteem in adolescent women. In 1992, Jaffee and Manzer, in "Girls' Perspectives: Physical Activity and Self-Esteem," confirmed that self-esteem is linked to life-building skills, employment readiness and preventing crises later in life (1992). In 1996, Jaffee and Wu released findings that girls' involvement in physical activity is a factor that influences high body image. In addition, participation in physical activity was found to be related to self-satisfaction, confidence, and perceived competence.

The President's Council on Physical Fitness and Sports (1997) issued a report, "Physical Activity and Sports in the Lives of Girls," stating that involvement in sports and physical activity has tremendous potential to enhance a girl's sense of competence and control. Therefore, leaders should incorporate cooperative as well as competitive opportunities so girls can learn physical skills in a non-threatening environment." Many researchers indicate that a mere involvement in physical activity for adolescent females in not enough to increase their chance of continued physical activity into adulthood. A child's attitude toward physical activity and class structure may greatly influence her continued participation. Therefore, physical education classes have a moral

responsibility to offer programs with ethical leadership that foster feelings of self-worth for female adolescents. (Lirgg, 1993; Martinek,1989;Treanor et al, 1998).

The sport and exercise literature report that physical activity provides great potential for psychological and physical benefits for people (Barnett, Smoll, & Smith, 1992; Leith & Taylor, 1991). In the same manner, it has shown that the perception of physical prowess is related to the development of self-efficacy (Jackson & Marsh, 1986; Weiss, McAuley, Ebbeck, & Wiese, 1990). Although a relationship between physical activity and self-efficacy is generally accepted, the exact nature of this relationship is not clear. The literature empirically illustrate that self-beliefs are a critical component of modern theories of human motivation, which impact achievement and motivation in many domains, activities and programs (Eccles, Midgley, & Adler, 1984, Martinek & Griffith, 1994; Nicholls, 1984).

The central construct of self-beliefs is derived from Bandura's (1986) Social Cognitive Theory. This theory provides the theoretical framework of the self-efficacy construct (Bandura, 1986). Within this perspective, one's behavior is constantly under reciprocal influence from cognitive (motivational factors) and environmental influences. This three-way interaction of cognitive, behavior, and environmental situations is called the "triadic reciprocality." (Bandura,1986). According to the tenets of Social Cognitive Theory, individuals possess beliefs that influence them to exercise a measure of control over their thought patterns, feelings, and courses of action, that "what people think, believe, and feel influences how they behave" (p. 25). Self- efficacy, a critical mediator of behavior change and a common target of interventions, is a belief in one's ability to carry out a desired action and affects the likelihood one will attempt to overcome barriers. (Bandura, 1977) It is defined as "people's judgments of their capabilities to organize and execute courses of action which are required to attain designated types of performances" (p. 391). Self efficacy is not concerned with the sheer number of skills

one possesses but with the judgments and coping strategies of what one can do with whatever skills one possesses" (p. 391). It is the most influential arbiter in human agency and plays a powerful role in determining the choice people make. It also functions as an important determinant of motivation and action. Applied to the academic domain, a students' academic performance in influenced by how she is affected by the instructional strategies within the classroom.

The individual's interpretation of their performance within an environment not only informs and alters the environment and self-beliefs, but it informs and alters subsequent performance attainments (Bandura, 1986). People engage in tasks in which they feel competent and confident and avoid those in which they do not. As perceived self-efficacy increases, sustained involvement in the activities and subsequent achievement increases. Linnenbrink and Pintrich (2003) state that beliefs can change behavior. Additional studies have investigated the relationship between self-efficacy and performance, and have reported that high self-efficacy leads to better performance than low self-efficacy (Feltz, 1994; Lee, 1982; McAuley & Jacobson, 1991; Weiss & Klint, 1989). Research consistently supports the notion that self- efficacy beliefs are a necessary component of an individual's achievement and success in learning skills; improving skills and competing at higher skill levels (Eccles, Midgley, & Adler, 1984; Nicholls, 1984). Self-efficacy, a factor strongly associated with individuals' views of their achievement within their environments has been frequently cited as a mediating construct in achievement striving and as a critical psychological factor affecting athletic performance.

In addition to the sport and physical activity literature that show self-efficacy have considerable power for predicting and explaining performance, a considerable body of literature exists in the academic domains and an array of other disciplines that provide support for the tenets of self-efficacy. Other domains that have been the focus of self-

efficacy studies include psychological health (O'Leary, 1985); assertiveness (Lee, 1983); mood behavior (Kavanagh & Hausfeld, 1986); smoking behavior (Garcia, Schmitz, & Doerfler, 1990); teacher preparation (Ashton & Webb, 1986); mathematics learning (Hackett & Betz, 1989; Pajares & Kranzler, 1995) and writing (Pajares & Johnson 1994; Pajares & Johnson 1995). Bandura (1977) asserts that self-efficacy is not only domain-specific but also task- and situation specific; that is percepts of efficacy affect situations in which they are studied. This perspective allows researchers to gain deeper meaning into the interactive relationship between individuals' performance and self-efficacy.

Self-beliefs of efficacy are a critical determinant of how well knowledge and skill are acquired at the outset of learning by an individual. Because it affects almost everything an individual does -- what they think, how they feel and how they act (Bandura, 1990), it exerts a substantial effect on performance and is a better predictor of an individual's capabilities than by what the individual is actually capable of accomplishing. Research shows that people may perform poorly because they lack the ability, or they have the ability but lack the perceived self-efficacy to make optimal use of their skills (Bandura, 1990). How individuals interpret the results of their performance attainment affects and alters the environment and their self-beliefs. This in turn affects perceived self- efficacy and alter subsequent performance.

The research consistently reveals that positive self-efficacy in ones ability to perform a sport-related behavior with a certain competency is related to participation in motor skill performance. If students have high self-efficacy they are more likely to consistently perform in physical activities and be successful in those in which they participate (Chase, 1998). An individual's personal perception of self-efficacy serves to influence how much effort one chooses to invest in the activity, the persistence sustained by the individual in the face of failure, and one's choice of future activities. Bandura and Wood (1989) state that the stronger the perceived self-efficacy, the higher

the goals people set for themselves and the firmer their commitment to engaging in and completing them.

Physical education classes are the means employed within the public school setting to educate and develop motor ability for children that enables them to become skillful movers and physically active adults. Seeing that physical activity among youth has declined over several decades, especially adolescent females, and how low levels of physical activity have been associated with increased risk of both obesity and certain types of cancers, it is imperative that this trend be halted and/or reversed. There is growing evidence about the link between several prominent adult degenerative diseases and the lack of adequate physical activity and improper diet during childhood (CDC, 2002). This research suggests that there are potentially positive effects from physical activity in childhood and the subsequent likelihood of developing a lifestyle and attitude that may encourage continued activity as adults. Thus, providing physical education environments that are the most conducive for the successful attainment of motor skills in physical activity among female adolescents is imminent. According to Bandura (1986) the most influential sources that students use to make inferences about their ability to perform at certain levels are their performance attainments. These performance attainments are in part the result of what they come to believe that they have accomplished and can accomplish.

Schunk and Gunn (1986) indicate that as students work at a task, their perceived capabilities for improving their knowledge and skills are influenced by factors such as their ability to process instruction cognitively, their actual successes and failures, the pattern of these outcomes (improvement or no improvement), and various classroom contextual factors (e.g., rewards, goals, social comparisons). Individuals having high self-efficacy in a particular domain will choose activities that will contribute to the growth of competencies in that domain (Bandura, 1977). Schunk (1984, 1985) points out that

highly efficacious students will be more motivated to acquire skills and knowledge rather than merely completing activities. This point is important because students usually enter an area of learning lacking the skills necessary to complete tasks or activities and must work to develop those skills. Individuals having high self-efficacy may acquire those skills more easily and attain greater success than individuals having low self-efficacy. Confidence for future success is based largely on past performance and higher self-efficacy is often associated with greater effort and, therefore, achievement (Bandura, 1986).

Feltz and Weiss (1982) state that self-efficacy is the strongest and most durable determinant of performance accomplishment. Self-efficacy, a critical mediator of behavior change and a common target of interventions, affects the likelihood one will attempt to overcome barriers. It is directly related to the achievement component in tasks for learning skills, improving skills, competing at higher skill levels, higher motivation, and ultimately, more enjoyment of participation (Barling & Abel, 1983; Lee, 1982). Also it plays a role in improving performance and has consistently predicted exercise behavior (Garcia & King, 1991; McAuley, 1992; McAuley & Jacobson, 1991). Ulrich (1987) indicates that it has as an important effect on one's level of motivation by determining what individuals do with the knowledge and skills she has attained.

Self-efficacy judgments have diverse effects in any achievement setting and exert substantial effects on performance. It has been found to substantially impact an individual's perception of ability with regard to their willingness to perform certain tasks in a specific setting (Bandura, 1986). Once formed, self-efficacy beliefs regulate the effort people will expend, how long they will persevere in the face of obstacles and failures, and the degree of anxiety or confidence they will bring to the task at hand. The perceptions of self-efficacy to perform the task at hand have particular importance with regard to better performance, higher motivation, persistence, and greater enjoyment

(Feltz, 1984; Gill, 1986). As such, the challenge is to provide environments that raise learners' levels of self-efficacy, which are conducive to the increased learning of physical activity for all students.

Nature of the Problem

Historically, it has been a responsibility of schools to promote the development of students' self-concept as reflected by numerous programs in education that identify the enhancement of self-concept as a primary objective according to educational leaders. The interrelationships between children and school are fundamental to the question of self-concept (Eichhorn, 1980). Schools are an arena for cultivating self-efficacy during the crucial formative periods of children's lives. They are a place where children develop their cognitive competence and acquire the knowledge and problem-solving skills essential for participating effectively in society (Aston, 1985; Schunk, 1986 as cited in Grubbs et al, 1992). According to Moriarty (1995), self-efficacy is a mediating variable between the learning environments and achievement. She contends that students' judgments about the attractiveness of particular tasks are likely to influence their motivation and, subsequently, their achievement. It is agreed that a student must have a reachable goal if they are to succeed in a learning situation (Phillips, 1967).

Recent scholars have addressed the controversial issue of the gender organization of schools. The most pervasive themes in the literature concern the issue of gender context-- coeducational or single sexed settings (Lee & Marks, 1992) as it relates to equality of opportunity. Debates regarding the merits of co-educational and single-sex schools have engulfed the attention of the educational community. The current policies and practices as it relates to gender context are hotly debated today. Research has been untaken to examine the advantages and disadvantages of single-sex and coeducational schools.

Coeducational schools have predominated in U.S. public education for more than a century and the experts are divided on the claimed academic benefits of single-sex education. The movement for single-sex education follows a decades-long debate about how well girls are doing in public schools (Jost, 2002). Supporters of the coeducational school organization argue that normal social environments contain people of both sexes and that coeducational settings prepare students more effectively to take their place in a society of men and women than do single-sex schools (Dale 1971, 1974; Schneider & Coutts, 1982). Whereas supporters of single sex organizational settings argue that the "normal social" coeducational environments socialize young men and women into unequal social and professional roles that characterize a society stratified by gender (Hansot & Tyack, 1988). As such, they purport that single-sex educational settings equip young women to surmount gender discrimination and stratification in the larger society (Lee & Marks, 1992). "Single-sex education works better", says Leonard Sax, "Kids who attend single-sex schools not only do better academically but also have a better attitude toward school and a better outlook on life." (Josh, 2002, p.2)."

The earliest arguments in the debate and thinking about the issue have been done in Great Britain and Canada (Riordan, 1985). However, rapids shifts in the U.S. education of females has encouraged educators to examine whether females benefit more from single-sex education or coeducation, with specific areas of interest including both achievement and psychological components of boys and girls in each of these settings (Monaco and Gaier, 1992). In the United States, most schools became predominately coeducational in the 1900's (Diehl, 1986) while single-sex schools became virtually extinct (Riordan, 1985). Nonetheless, within these coeducational schools, physical education classes, along with a few others (home economics and industrial arts) were sex-segregated at all levels of education, except perhaps in the elementary school (Williamson, 1996). Little controversy existed amongst these sex-

segregated settings until the early 1970's; this is when the Congress passed legislation that prohibited gender-segregated instruction within American educational institutions that received federal funding. No other legislation has impacted the program of physical education and caused such controversy as that precipitated by Title IX (Lirgg, 1992).

In 1972, Title IX of the Educational Amendment Act was passed in an attempt to provide access for girls and boys to all aspects of the school curriculum, to eliminate sex discrimination within American educational institutions and to achieve gender equity. It was the first law ever to prohibit discrimination on the basis of gender – all institutions that received federal funding were required not to discriminate on the basis of gender in the provision of any educational programs or activities. The law simply states, "No person in the United States shall, on the basis of sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance" (Education Amendments of 1972). Educational opportunities could not be offered separately based on the gender of the student. Because almost all schools received federal funds, Title IX as it is popularly referred to, applied to nearly everyone from elementary school to colleges and universities. As a result, virtually all state schools became coeducational.

The ramifications of Title IX were largely felt within athletics as it forced institutions to reexamine their policies towards women's athletics. Female athletes were to receive monetary support and opportunities similar to male athletes. Title IX precipitated changes in many programs, which resulted in an immediate increase in female sports participants. In 1971, 1 in 27 females participated in high school sports. In 1972 only 7% of the high school athletes were female (Miller Lite Report , 1985), and boys' athletic budget was five times that of the girls (Coakley, 1986). In 1998, the number was 1 in 3 (Women's Sports Foundation calculation based on NFSHA and Department of Education statistics). From 1971-80, the number of female athletes at the

high school level increased 616%, with females accounting for approximately 35% of high school athletes in 1980 (Title IX, 1993). Today, female's account for 40% of high school athletes (National Federation of State High School Associations (NFSHSA), 1998).

With the passage of Title IX, the gaps in budget and programs for boys and girls were narrowed. Prior to this time, inadequate budget, poor equipment and facilities, and a general lack of programs (or dropping programs) had been the norm for females' athletics. In physical education and athletic programs, it was not unusual to find males using new equipment and facilities while females used the "hand-me-downs". Nor was it unusual for boys' teams to have specific team uniforms while the girls wore their physical education uniforms. Girls' teams practiced early in the morning or at night while the boys' teams had the use of all facilities immediately after school (Durrant, 1992).

Although equal aggregate funding for male and female sport programs is not required, nor is it required that expenditures for specific sports be equal, schools are required to spend dollars proportional to participation rate. Schools must provide necessary funding so that the quality of the girls programs equals that of the boys. In addition to monetary issues, Title IX requires proportional participation opportunities. The percentage of opportunities for female athletes in the athletic program must match the percentage of girls in the student body. This law made an immense difference in the way educational opportunity was viewed and became the most direct impact to ultimately change the face of the sex-segregated settings in physical education (Geadelmann, 1980; Varygas, 1989).

Title IX, the first comprehensive federal legislation to include the right of students to be free of sex discrimination, afforded benefits to both boys and girls (Taylor & Shavlik, 1975). The basic premise of the law was to guarantee that males and females were treated in a like manner with regard to educational programs and extracurricular

activities. This reorganization was to provide all students with exposure and access to a wider range of opportunities and a more equal environment for the development of physical and social skills. All schools receiving federal assistance were compelled to be in total compliance with the law by 1978. Title IX transformed educational programs, including physical education and athletics, from gender-segregated to gender-integrated. Gender -segregated instruction was prohibited (Geadelmann, 1980); no course could be offered to only one sex and courses could not be described as being more appropriate for one sex or the other. Gender-integrated programs became the requirement. The question of allowing girls to play on boys' teams when equal opportunity did not exist for girls, and vice versa, resulted in a reexamination of principles and attitudes previously unquestioned. For this reason, the debate over the benefits for females in a single-sex or coeducational environment moved into the gymnasium.

There is little doubt that the passage of Title IX forced institutions to reexamine their policies toward girls' programs and precipitated a tremendous change in many of them (Fox, 1992). The classroom plays a major role in determining what an individual learns but just because the setting is coeducational does not mean in reality that a gender equitable environment is produced (Fennema, 2000; Nigles, 1995). In the physical education research, mixed reactions abound towards a gender-integrated environment (Griffin, 1985). During the time between the passage of the law and the publication of guidelines for its implementation, coeducational classes were a struggle for many physical education teachers because boys and girls physical education and athletic programs had traditionally been separate (Arnold, 1977). Teachers argued that little or no assistance was provided to them on how to deal with the problems associated with coeducational classes; they were not consulted, involved, or prepared to incorporate gender equity into their classes (Griffin, 1985). Grouping students for instruction and competition, choosing instructional strategies, selecting activities,

supervising, and evaluating student performance are responsibilities that the physical educator must meet somewhat differently when teaching coed classes (Arnold, 1977).

Research aimed at physical education programs since the implementation of Title IX asserts that some programs agree in “paper” compliance, meaning that even though girls’ and boys’ names appear together on class rosters there are sex-separate groups within classes. Other programs are coeducational, as the law requires, but teachers and administrators comply grudgingly and often with resentment (Griffin, 1984). Stereotypical male and female participation patterns exist during gymnastics class (Griffin, 1983), girls tend to be excluded in team sports when they are played in a coeducational setting (Kunesh, et al., 1992; Solomons, 1976). Engel (1994) found there was a greater decrease in participation levels for young women subjected to mixed-sex classes compared with single-sex classes. The findings of the Miller Lite Report on Women in Sports (1985) shows that 7 out of 10 women believed sports should be separated by sex, while 6 out of 10 women under 30 supported sex-segregation.

While some physical educators believe that coeducational physical education is an opportunity to eradicate gender-role stereotypes because it gives students the opportunity to enjoy sport and recreational activities together (Griffin, 1981, 1984; Stamm, 1979). Others acknowledge that coeducational physical education can also be an exasperating experience, especially for less skilled students. Those in support of coeducational physical education programs contend that coeducational environments will succeed if the staff and administration are committed to it (Evans et al., 1987; Griffin, 1984); if in-service teacher training is on going (Griffin, 1981, 1984); and if peer comparison is de-emphasized (Stamm, 1979). Griffin (1981, 1984) also cited indicators for failure in coeducational settings and reasons why coeducational programs are problematic. Some teachers, through the instructional strategies they use, actually promote the idea that sports are only for the highly skilled and aggressive minority.

Additionally, she cited non-instructional game play, an emphasis on competitive team sports, lack of action by the teacher during rude interactions or instances of inequitable participation, and lack of grouping by size or ability as reasons for failure in the coeducational setting.

The debate as to whether a gender-integrated physical education environment actually produces a gender equitable environment for learning physical skills for all children is raised. Should girls share all the opportunities of boys because they share a common humanity or are girls in some way distinctive? There is a notable difference between equality of access and feeling confident to physically perform in an environment were achievement could be attained and developed. Schunk (1984) hypothesized that educational practices have an important contextual influence on students' self-efficacy. Furthermore, boys and girls in the same context may perceive that environment differently, even if teacher behavior is similar toward both sexes (Brophy, 1985; Eddles & Blumenfeld, 1985). Boys and girls may view a coeducational class in physical education differently; that is, boys may find that coeducation fosters efficacious beliefs, while girls do not. Eccles and Blumenfeld (985) suggest that environments (possibly coeducation) may facilitate achievement in boys, while that same context may dampen or have little positive effect on girls' achievements. Thus, class environment could create differences in the autonomous learning behavior undertaken by boys and girls. However, this is not well understood.

Coeducational physical education may affect different age groups in different ways. Stein and Smithells (1969) say elementary school children usually have greater confidence in their academic abilities as such they may not stereotype physical activity or sports as stringently as older children, even though stereotypes definitely are present. Too, gender differences related to physical ability during these years are less apparent than during post puberty. Middle school students have the greatest span of differences

with respect to maturity and abilities in as much that they are the most heterogeneous group. Oftentimes boys may be physiologically closer to 8-year olds, while some girls may already be experiencing physical maturity (Stafford, 1982). Typically, middle school children are very self-conscious about their physical characteristics, and peer acceptance plays a central role in their life. According to the Center for Positive Practices (2004) the majority of middle school children have made significant judgments regarding their preferences toward certain academic domains. These judgments are influenced by their perceived capability with regard to the domains, as a result of social comparison with peers and feedback from teachers.

The question as to whether coeducational or sex-segregated environments are more conducive to self-efficacy for middle schools girls may be difficult to answer. However, there is a need to identify the environment in which girls can have exposure and access to a wider range of physical activities and in doing so create positive experiences that increase the development of confidence, competence and self-efficacy. Research exploring the effectiveness of single-sex or coeducational environments on the development of self-efficacy in middle school girls is scant.

A few studies in the past have looked at the effectiveness of these environments by looking at performance outcomes on skill tests and achievement tests. The findings of this research show little or no differences in the performance of students taught co-educationally and those taught in sex-segregated classes and are supportive of coeducational settings in sports such as basketball (Flanagan, 1980), tennis (Brightwell, 1969), and volleyball (Koivala, 1978). Lirgg (1992) indicates that the results from these studies may be due to the fact that little improvement in performance can be demonstrated in only one instructional unit of 2-3 weeks. Griffin (1983) focused upon the quality of students' interactions to measure the success of coeducational physical education. She reported that the boys limited the girls' abilities to learn during a

gymnastic unit by hassling them, but the girls did not limit the boys' opportunities for learning.

In their study comparing physical activy and lesson contexts in coeducational and single-gender classes, McKenzie, Prochaska, Sallis, and LaMaster (2004) found that girls spent fewer minutes and a smaller proportion of lesson time in physical activy compared to boys. Also, they found that girls-only classes could provide more emphasis on building the motor and sports skills that many girls lack.

Using slightly different approaches, Lirgg (1993) and Treanor, Graber, Housner, and Wiegand (1998) examined the perception of middle schools girls assigned to either coeducation or single-sex classes for physical activities. Both studies found that female middle school students preferred same-sex classes and there was a trend toward greater confidence in same-sex classes for females. Additionally, Treanor et al (1998) found that females perceived that they performed skills and played team sports better, received more practice opportunities, and were less fearful of injury in same-sex physical education.

Disciplines such as mathematics education have also looked at the impact of perception variables in measuring the success of coeducation or sex-segregated environments (Fennema & Sherman, 1977; Hilton & Berglund, 1974; Sherman, 1980, 1981). Rowe (1988) and found that those in same-sex classes exhibited higher gains in confidence than those in coeducational classes and that confidence was a significant predictor of achievement, especially for those in same-sex classes. The literature reports that a student's confidence in mathematics, as well as their perceptions of the usefulness of mathematics and their perceptions of the sex-appropriateness of math were better predictors of math enrollment and continued advanced study in math classes than their math achievement.

In summary, if the context of the learning environment (same-sex or coeducational) influences the self efficacy beliefs of students, then it is important to identify the best learning environment that is conducive for both genders in physical education. A gender-integrated gym or playing field does not mean that both genders share mutual respect or confidence to perform physical tasks. Given that girls frequently display less confidence than boys in physical activity (Lirgg, 1993), the type of class in which girls learn physical skills may be a key to understanding their confidence for learning activity. Drawing from the research, self-confidence ultimately affects performance in physical activity. As such, examining girl's perceptions of the effects of class context (coeducational or single-sex) on efficacy is within the scope of this study.

Purpose of the Study

The purpose of this study is twofold: (1) to assess the effects of coeducational and sex-segregated classes on several self-efficacy variables in middle school girls' while participating in unit of volleyball; and (2) to determine the influence of these variables upon middle school girls' efficacy for learning volleyball.

Research Questions

This research was designed to answer the following questions:

1. Are there differences between single-sex classes and coeducational classes with respect to middle school girls' self-efficacy for learning volleyball skills?
2. How does single-sex and coeducational physical education settings influence the self-efficacy of middle school girls for learning volleyball skills?

Hypothesis

In light of the above questions, the following hypothesis was drawn:
Girls in same-sex classes will exhibit greater self-efficacy for learning volleyball than will girls in coeducational classes.

Delimitations

The delimitation of this study is as follows:

1. This study is limited to seventh and eighth grade middle school girls enrolled in regular coeducational physical education classes.

Generalizations to younger and older grade levels should not be made.

Limitations

1. Teacher behavior cannot be directly controlled and therefore may vary from the same-sex class to the coeducational class.
2. There may be days when the teacher may be absent during the unit and a substitute conducts the class.
3. Both classes will be taught in the same gym that is not divided by a partition. Students will be able to observe the other class if they desire.
4. The length of intervention is limited to two weeks because of scheduling used by the schools.

Assumptions

1. Students in both contexts (coeducational and single-sex) received virtually the same lesson each day in view of the fact that the teachers were given the same daily lesson plans.
2. The students answered honestly on the self-report measures.
3. Past history of the classes were not confounding variables given that new classes were formed from the existing classes.

CHAPTER II

REVIEW OF THE LITERATURE

This study draws on the different literature in its discussion of the debate and the arguments used for and against the educational context of coeducational or sex-segregated settings for physical education, which follows similar lines to the school system in general. This review of literature will be organized into the following topics: (a) the coeducational debate in education; (b) history of physical education to its present coeducational context; (c) studies from other disciplines relating to experiments to move back to same-sex classes; (d) Bandura's self-efficacy theory -- a conceptual basis for decision -making in an educational context.

Debate for a Coeducational Context

The concept of joint or separate education has spanned across civilizations. There are both proponents and opponents for educating girls and boys separately and for educating girls and boys together. The habit of making sharp distinctions between what is appropriate to men and to women can be traced back to the ancient Greeks. Plato wrote in *The Laws*, "What is noble and of a manly tendency is masculine, while that which inclines rather to decorum and sedateness is to be regarded rather as feminine both in law and in discourse (cited in Kerber, 1987, p.38). Linda K. Kerber writes in *Nothing Useless or Absurd or Fantastical: The Education Women in the Early Republic*, "the separation of spheres is far older than its nineteenth-century expression" (Kerber, 1987).

Historians have documented that woman's intellect was considered inferior to men and extensive learning for women was deemed inexpedient and dangerous (Palmieri, 1987). As such, the literacy rate of women was well behind that of men. In Rome, the royal and the upper class females enjoyed private tutors, however, illiteracy for the vast majority of females was the norm. Ancient Greek women found that

education was not available to them at all. During the Judeo-Christian era, formal education was available to boys and girls, however reading and writing were not thought to be particularly important for girls.

In the sixteenth and seventeenth centuries, the improvement in female literacy had developed in response to a felt need to read and write. Two major developments encouraged wider literacy, which extended to the female population. The first major development, which had a significant impact on education for girls, was the Reformation, which encouraged believers to read the Bible. Protestant women who were thought to need to read the ceremonial reading of sacred texts were taught rudimentary reading skills. The next development was the commercial revolution. During this time, while girls were learning to read on a reasonably large scale for the first time, their brothers were encouraged to learn to write as well as to read; reading and writing were both an emblem of and a means to power (Kerber, 1987).

Literacy slowly rose in the early modern period, and not at the same rate for each class and each sex within each class. Overall, however, the Reformation era had a significant impact on education for both boys and girls, with the roots of universal, compulsory education being planted in this period (Kolesnik, 1969). A few Grammar schools for girls were established and taught by women, as women were prohibited from teaching boys; and in certain areas, coeducational classes were taught by men—the exception not the rule (Kolesnik, 1969).

By the late eighteenth century, improved schooling for girls received another boost - the political revolution. Believing that republics rested in the virtue of their citizen's revolutionary leaders of the time encouraged the vigorous extension of formal facilities for teaching girls (Kerber, 1987). Still, education for the masses meant separate facilities for boys and girls. By 1900, 98% of the public high schools in the United States were coeducational and the question of single-sex classrooms was viewed

by many as a dead issue in all areas of the country but the South (Woody, 1974). For the Europeans, where single-sexed schools were the norm; it was not until the mid-nineteenth century that a move toward coeducation took place (Evans & Davies, 1986). "For much of the public school's history, gender arrangements were rather more taken for granted than not. Other issues loomed larger: organizing schools by age and proficiency, school consolidation, and the "Americanization of immigrants" (Hansot, 1993, p. 14)

Today--many years later--the issue of coeducation or single-sex schools is fervent. Educational researchers and the general public have debated extensively the effects of attending different types of high schools (Marsh, 1991). Feminist scholars have produced a wealth of material in many areas and argue very convincingly that schools disadvantages girls and women and locks them into limited and gender-constrained futures. Much of this body of knowledge is compelling and its evidence is beginning to inform educational practice (Willis & Kenway, 1986). A look at the issue ensues.

The Argument for Coeducational Schools

The financial crises that plagued many institutions during the 1870s played a critical role in opening doors for female students (Woody, 1974). Economically, most states were too poor to establish two separate institutions to educate the sexes and bowed to the inevitability and financial wisdom of coeducation (Butcher, 1989). One school was less expensive to operate than two, especially in rural settings. The financial advantages of operating only one school could be realized in funding, school buildings, and materials (Greenough, 1970). Rossi (1987) reports that escalating costs coupled with reduced federal funds for financial aid to both students and institutions provided the economics for coeducation.

In the 1960s and 1970s, there was a movement away from single-sex education at both the secondary and post-secondary levels. Again, social and economic reasons motivated these developments; instead of being dictated by educational concerns, many major policies in education frequently are economically, and socially motivated" (Astin, 1977). Rossi (1987) reports, in her study, *Coeducation in a Gender-Stratified Society*, "neither an ideology of sex equality nor the pedagogic desirability of educating men and women together played a role in this decision; economics and demography dictated the changes" (p.13).

According to Hansot (1993) much of public school's history regarding gender arrangements were more taken for granted than not. Other issues loomed larger: organization of schools by age and proficiency, school consolidation, and the Americanization of immigrants. When the gender issues arose, the boy problem was as salient as the woman question. Many felt that the schools were doing well by the female students while they risked feminizing the boys. In the 1970's, reformers reversed the charge arguing that public education made girls too feminine and boys too masculine. With the rapid shifts in education of women in the United States, educational researchers and the general public have debated extensively the effects of attending different types of school (Marsh, 1991). Presently, researchers are beginning to examine both the psychological and achievement components of men and women in these settings (Monaco & Gaier, 1992).

Historically, according to Marsh (1989), the most extensive and the most important research on single-sex and coeducational differences was conducted in England and Wales by Dale (1969, 1971, 1974). Marsh (1989) points out, however, that Dale's perspective is, "voluminous, opinionated, and policy oriented—he is unabashedly in favor of coeducation and marshals support for his position" (p. 70). I will briefly

summarize the major conclusions from Dale's research as reported by Marsh (1989, p. 70-71).

1. According to Dale, "it has been demonstrated that the average coeducational grammar school is a happier community for both staff and pupils than the average single-sex school" (p.273). He also found that anxiety was slightly lower for students from coed schools than for those from single-sex schools, and that neurotics tended to be lower in coed schools than single-sex for boys, although there was no difference for girls, and that there were no significant differences on introversion-extroversion.

2. Dale concluded, "the social and affective benefits of coeducation were not at the expense of academic progress" (1974, p.273). Despite apparent preexisting advantages of students in single-sex schools, boys attending coed grammar schools had somewhat higher levels of overall achievement than boys attending single-sex grammar schools did. Whereas there appeared to be little or no difference between girls attending each type of school coeducational schools, boys had a greater interest in math, and girls in literacy and language. For attainment in English, Dale found no clear support for the advantage of either type of school for boys or girls. On the basis of his research and that by others, Dale concluded, "a cautious summing up would be that the progress of boys is probably improved by coeducation while that of girls is not harmed". (1974, p. 267)

Similarly, the results of Schneider and Coutts' (1982) study found no difference between students from single-sex and coed schools in terms of emphasis on scholarship and achievement. But found that coeducational schools were perceived as more pleasant atmospheres, more conducive to the development of self-confidence, and reflecting less prejudiced and irrational thinking.

Politically, proponents saw coeducation as the best way of providing a common humanity and equal opportunities for girls, particularly in the beginning years when the

move toward coeducation was seen as profitable for girls. The idea was that if girls were educated with boys, they would have greater access to a decent education in order to become more independent and autonomous (Lavigueur, 1980). Consistent with this argument, Willis and Kenway (1986) argued that women who pushed for same-sex education were endorsing self-imposed “marginalization”. They questioned whether girls could be prepared for competition by removing them from it. They suggested that same-sex environments were not the answer because they did not center on changing the attitudes of the boys; neither would they be satisfactory to change the practice and the value of teachers and administrators. In support of the same political assertion, educators in the United Kingdom converged on the same idea that equality, opportunity, freedom and choice were all inherently good things that should be sponsored through and expressed in equal opportunity coeducational organization (Evans & Davies, 1993).

Hyde’s (1971) disclosure, “the case for coeducation is built upon the conviction that the task of education is the development of social human beings dedicated to constructive social purposes . . .”(p.24), suggest that the push toward coeducational settings may have been propelled by its socialization function. He claimed that the average coeducational community was happier for both staff and students. Obvious in his support for coeducational settings, Dale (1974) claims that these contexts are more favorable to the overall adjustment of the student and provide a more natural social environment to prepare adolescents to take their place in a heterogeneous society. In addition, he states the coeducational community was happier staff as well as students.

A longitudinal study conducted by Marsh et al. (1988), monitored the progress of students during the 5-year transition and reorganization of a boys’ and a girls’ school into one coeducational school. They reported that teachers favored the transition from single-sex to coed and indicated that students overwhelmingly preferred coed to single-sex schools. However, there was a detriment to self-concept for students who attended

coeducational high school during these years of transition. These benefits of coeducation to self-concept were not at the cost of academic achievement.

The Argument for Single-Sex Education

The present discussion will focus on the proponents in support of single-sex education. As to be expected, they are equally as, if not more, passionate than proponents of coeducation. The basic tenet of the proponents for same-sex education is that the effects of coeducation adversely impact the academic, social, and psychological well being of girls. In support of single-sex settings, Mahoney (1985) argues "coeducation, as things stand, is not more socially desirable for girls because it is more normal. Rather, because it is more normal it is, for girls, highly undesirable" (p.93). Coleman's (1961) landmark study, *The Adolescent Society*, suggests that coeducation may be inimical to both academic achievement and social adjustment; likewise, other researchers assert that coeducation may be detrimental to the academic and social development of girls (Lee & Bryk, 1986; Mahoney, 1985). Noteworthy, is a comment made by Spender (1982), "coeducational institutions are nothing more than boys' schools with girls present" (p. 66).

There is evidence to suggest that same-sex classes for girls have fewer distractions, improved working conditions, a decrease in student-attention demanding behavior, fewer discipline problems, and higher task orientation (Kernkamp & Price, 1971; Powell & Powell, 1983; Trickett, Castro, Trickett, & Schaffner, 1982). Single-sex school classrooms were rated higher in student involvement in the class, higher in affiliation among students than coed school classrooms, and higher in order and organization and teacher control (Carpenter & Hayden, 1987; Trickett et al., 1982).

Jones, Shallcross, and Dennis (1992) compared the social and affective variables of the two contexts. They found that students from single-sex schools are more academically oriented whereas students from coed schools are more socially

oriented, but the two did not differ in overall self-regard. According to Tidball and Kistiakowsky (1976), same-sex settings provides "a favorable climate for female students that conveys to them a sense of being in an environment where there are many other girls seriously involved in a variety of academic pursuits" (cited in Lee & Bryk, 1986, p. 382). McRobbie (1980) advocates that if girls were more involved with all-girl subcultures, rather than having an early involvement with boys, they might gain some much-needed confidence.

Research shows single-sex settings have a positive impact on students' academic achievement, as evidenced by the following quote, "we examined single-sex school effects on achievement in reading, mathematics, science, and writing separately…..in general, attending single-sex schools positively affects academic achievement. . .the statistically significant effects on achievement favors single-sex." (Lee & Bryk,1986, p.233). Also, students in single-sex schools spend significantly more time on homework, and this is especially true for girls. Marsh (1989) notes achievement levels in single-sex schools typically show that academic achievement is substantially higher than in coed schools. In New Zealand, Jones et al. (1972) showed that students as both more academically oriented and satisfying than coed schools viewed single-sex schools.

In as much as proponents of coeducation emphasize that actual achievement does not appear to suffer when students are educated together, and have shown that boys' achievements may increase, proponents of same-sex education outline vast differences between coeducational and same-sex educated students in perceptions and attitudes about achievement.

Towards Coeducational Physical Education

The history of coeducational physical education is young, despite coeducational school settings having been the norm for public schools since the turn of the century in

the United States. Girls and boys have been educated in mixed-grouping school setting in all subject areas except industrial education, home economics and physical education. Physical education retained a separate status in an otherwise integrated system. Scraton (1993) points out that physical education is recognized as an anomaly in the coeducational school settings. However, the passage of Title IX in 1972 interrupted the arrangement of this single-sexed setting and made a tremendous difference in the way educational opportunity in physical education was viewed.

Physical Education before Title IX

Physical education has been a part of every culture, from the most primitive to the most complex society. The passing on of physical skills from one generation to the next has been considered to be of major importance. Its role has not always been the same, but when interpreted in terms of its own culture, it has always played a significant role (Siedentop, 1980). Prior to the 1900s, physical education was narrowly defined as gymnastics, or physical training, or physical culture. Its primary orientation was toward developing good health. A philosophy of dualism was present—educating the mind and training the body (Freeman, 1977).

The first two decades of the twentieth century produced two significant changes in physical education. The first, championed by Thomas Dewey, during the progressive movement, was a move away from the medical prescription of physical education. Dewey, who had a strong belief in the unity of mind and body, began the concept of teaching the “whole child”. His views of the school as a social institution shifted the focus of physical education from a health-centered concern to a unified view of the child and education (Freeman, 1977).

The second change, “the new physical education”, introduced sports into the school curriculum. The admission of sport in the curriculum was partly in response to the problems out-of-school sports created for the schools and partly because of the

strong student interest in sports (Freeman, 1977). Sports were popular for boys and girls. Girls played basketball and English field hockey; Lee (1972) discloses, “because girls played the game (basketball) first in so many parts of the country. . .the game was considered by many a girls’ game and therefore sissy for boys,” (p.105).

At the same time sports was moving into physical education, another activity was moving with vigor—dance; recognized in the girls’ schools, men were slow in awakening to this movement field (Lee, 1972). Although sport was a major component in both men’s and women’s programs, the women developed their own rules for game play, such as divided courts and shorter games. Women physical educators were apprehensive of the problems that had develop in some of the men’s competitive programs. Therefore, after initially embracing sport, opportunities for formal competition curtailed among women (Kennard, 1977).

Both World Wars and the Depression had profound effects on the physical education curriculum. The nation, shocked to find so many physically unfit men for military duty, changed the focus of physical education from sports to calisthenics. Physical education programs basically became programs of physical fitness oriented toward the military needs of the nation (Zeigler, 1979). The money shortage at this time led to the belief that physical education programs were expensive “frills”—many felt that the money for physical education programs would be better spent elsewhere. As a result, a move to drop physical education as a requirement forced physical educators to have to defend their program for the first time (Freeman, 1977).

From World War II to the present day, fitness has become a major focus of the physical education curriculum. This movement was somewhat supported by President Dwight D. Eisenhower’s Council on Youth Fitness in 1955; and revived under President John F. Kennedy as the President’s Council on Physical Fitness. The old dualistic concept of the mind and body crept back into education during the Space Age. Hence,

the emphasis of educating students was placed more strongly in mathematics and science; physical education was moved to the background (Freeman, 1977).

Prior to Title IX, one could see both similarities and dissimilarities between the men and women programs. There was some similarity between the two curriculums during the early years in physical education but they gradually began to shift their emphasis. There were different expectations and performance levels for each gender (Geadelmann, 1981). Boys were believed to profit from activities that demanded strength, speed, and competition. Whereas, girls were viewed as being better suited for activities that emphasized cooperation over competition.

The belief that women were physically different and inferior to men in physical activities, required them to have a different and separate physical education program. Myths suggested that physical activity was inherently dangerous to the reproductive functioning of the female body, severely restricting the nature of women's participation in physical activity (Park, 1991). These perceived differences between boys and girls were use to justify separate and different worlds for the development of physicality (Geadelmann et at., 1985; Vertinsky, 1992). Thus, physical education became polarized—there were women's programs and there were men's programs, each separately administered.

As the years went on, the gap in the budgets and facilities between boys and girls in both sport and physical education began to widen (Boutilier & Giovanni, 1983). This discontinuity in practice and philosophies between men and women's programs made coeducational physical education programs practically non-existent except in the elementary schools.

Title IX and its Implications for Physical Education

There is no question, Title IX has brought about the most significant changes and has caused the most controversy in physical education. Title IX of the Education

Amendment added to the Civil Rights Act of 1972 was the first comprehensive federal legislation to prohibit sex discrimination within education institutions. Prior to the passage of Title IX, there were no laws forbidding gender discrimination in education. The preamble to Title IX states (from What is Title IX, 1988, p.85):

> *"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance."*

Title IX defines and ensures equality in education. The language of Title IX makes it illegal to treat males and females differently or separately—thus having far reaching implications for physical education. Under the provisions of Title IX, schools could not refuse participation in a course on the basis of sex. Any educational institution that receives federal financial assistance could not deny access to the benefits of public education on the basis of gender (Simon, 1985). Physical education was no exception. Classes were to be available to all students -- boys and girls could participate in a coeducational setting. Title IX came to represent a federal policy designed to right the wrongs of an educational system that had discriminated against girls and women for decades in terms of course offerings and facilities (Ornstien & Miller, 1976).

Under the law, however, students may be grouped by ability in physical education classes and activities as long as ability is assessed by objective standards developed and applied without regard to sex. Students may be separated by sex within physical education classes during participation in contact sport, which included boxing, wrestling, football, basketball, etc. Male or female teachers could teach the classes, providing provision for locker rooms were made. Regulations mandate that policies and rules regarding such matters as attendance, dress, showers, etc. shall apply to both sexes. The implication of Title IX, with regard to athletics is beyond the scope of this

study. The exemption of physical education from coeducation was no longer—the chickens came home to roost. To deliberately segregate students for, or within, physical education class was now a formidable offense by federal legislation.

The Physical Education Coeducational Debate

Despite Title IX, in 1984, twelve years after the enactment of Title IX, compliance was not being fulfilled and its implementation was not without problems. Sex segregation was still widely practiced in physical education. In her article, *Coed Physical Education - Problems and Promise*, Pat Griffin (1984) wrote:

> *"Some programs remain sex-segregated in blatant noncompliance with equity Laws. Some programs agree in "paper" compliance, meaning that even though Girls' and boys' names appear together on class rosters, a surprise visitor to the Gym would find sex-separate groups within classes. Still other programs are coeducational, as the law requires, but teachers and administrators comply grudgingly and with resentment, wishing for a return to the days of all girls on one side of the gym and all boys on the other side." (p.37).*

There was a lot of confusion about what the law stipulated when Title IX first came into effect (Cole, 1976). One of the problems that occurred with the implementation of Title IX was that teachers were not consulted, involved, or prepared to incorporate gender equity into their classes (Griffin, 1985a). As such, teachers felt inadequate because they received little assistance in understanding the rationale to deal with the instructional demands exacted upon them for coed physical education or in developing specific teaching strategies to make coeducational classes work (Griffin, 1984). Others resented federal intervention without local and state input (Cole, 1976). The pre-Title IX legacy of sex segregated physical education classes was difficult to overcome. As such, there was a movement totally away from coeducational physical

education classes because schools believed that Title IX was no longer monitored and therefore was not important (Reid, 1985).

There appeared to be no consideration given to the implications that coeducational physical education might have on the learning environment. Some question the decision to place girls and boys in the same environment (Monagan, 1983; Sadker & Sadker, 1994). Could girls and boys succeed in the same learning environment and become successful in motor skills attainment? Many teachers struggled to achieve gender equity in physical education. Ornstien & Miller (1976) indicated that by 1975, the educational climate surrounding the induction of Title IX was not as favorable as it had been in early 1970's. Questions were being raised over the value of educational credentials, the relationship of education to work, and the control of school resources creating a climate that was not contributory to the enthusiastic acceptance of a broad based education initiative. Furthermore, the failure of ambiguous language in Title IX, such as the removal of discriminatory practices and remedial action to be followed-up by working definitions, placed Title IX at the mercy of education politics and the value orientations fueling these politics at state, local, and school levels (Orienstien & Miller, 1976). Durrant (1992) notes that the lack of enforcement of the law by the Office of Civil Rights (OCC) also detracted from the support and success of Title IX. Though these implementation concerns may seem to reduce the effectiveness of Title IX, its policy represents a solution to the issue of gender discrimination.

In light of the move towards a gender-integrated physical education environment, the debate is on as to whether boys and girls in reality have equal chances to succeed. The assumption underlying Title IX was that once equal access was provided to the same instruction for girls as for boys, an increase in both the skill level and physical aspiration of females would follow (Vertinsky, 1992).

In view of Title IX, research conducted in physical education classes show different results for students who are provided equal access to the learning environment. Research submits that sex-integrated classes are more equitable – they provide the opportunity for boys and girls to enjoy recreational activities together; they get to set aside gender-role stereotypes (Griffin, 1984). Mary Duquin (1981) commented in relation to the biological pre-disposition of boys and girls in physical activity that learning and socialization determine human behavior, which in turn undergirds sex differences. Bischoff's (1982) study of group dynamics shows that the continual interaction of both sexes in controlled group situations create positive effects on attitudes and behaviors of males and female toward each other in activity settings. Whereas, Stramm (1979) suggests the use of master learning will help to avoid grading comparisons with other students in the class.

At the other end of the spectrum the picture is not as optimistic. Scraton (1990) argues that equality of access does not result automatically in equality of outcome or practice; often coeducation impedes girls' participation and progress. Within gender-integrated classes, boys monopolize playing time while girls are left out of game interactions (Kunesh et al., 1992; Solomons, 1976). Some teachers feel boys must hold back causing the program to become watered down (Griffin, 1984). In a study of differences between boys' and girls' participation in physical education, Griffin (1985) reveals that girl's lower skill level holds the boys back and girls they don't really try; whereas boys cause discipline problems. Also, teachers' sex-stereotyped students even when they tried to be fair. MacDonald (1990) notes that 98% of the girls studied (n = approximately 130) perceived that they were not favored within the gender-integrated classroom. Scraton (1990) points out that in many instances mixed-sex grouping have more to do with economic necessity and rationalization of diminishing resources, than because of a committed educational philosophy.

Studies of classroom interaction submit that pedagogical practices frequently reinforce rather than undermine the inequalities of gender (Carrington & Leaman, 1986) and that physical education teachers often do little to dispel the myths of female frailty within the gender-integrated physical education environment. Engel (1994) comments that schools fundamentally perpetuate the notion that some sports in physical education are more masculine or feminine that others. Therefore, it is not surprising that girls and women in physical education have less confidence in tasks that they consider to be male-oriented (Lirgg, 1992). Scranton (1986) contends the assumption that girls are less physically capable than boys is still prevalent among secondary physical education teachers while others indicate teachers spend a disproportionate amount of interacting with boys in comparison to girls (Vertinsky, 1992). Evans et al. (1987) make an appeal for new forms of curricula and pupil grouping, and better curriculum planning.

With regard to the different participation and interaction pattern characteristics in coed physical education classes, studies show differences between girls' and boys' participation. Engel (1994) found there was a greater decrease in participation levels for young women subjected to mixed-sex classes compared with single-sex classes. Griffin (1983) found that girls' and boys' only participated seriously in gymnastics event that they saw as gender appropriate (e.g. rings for boys and floor exercises for girls). In a study of middle school coeducational physical education, Griffin (1985) observed that some females proved to be formidable opponents to their male counterparts and were regarded by males as good players. She also noted less skilled males who often avoided active participation and were referred to disparagingly as wimps. Unfortunately, many more low skilled girls who preferred to participate only passively or serve as cheerleaders, and girls who were blatantly uninvolved, panicked by game play, or who resorted to tactics to beat the system.

As for teacher feedback, Solomons (1980) noticed gender differences. Teachers provided low-ability boys extra practice time but not low-ability girls. Teachers praised girls when they tried to perform a skill even if they didn't perform it as well as the boys were expected to do it. When girls performed poorly, the teacher ignored it or patronized them (e.g., "good try"); on the other hand, boys were criticized and corrected if they performed poorly. Solomon notes that one teacher in the study did not follow this practice with girls and obtained better results from them. In conclusion, Solomon stated that those students who were already skilled seemed to profit more from coeducational classes.

Relative to instructional strategies designed in gender-integrated physical education it was evidenced that girls were accommodated within the environment (Geadelmann et al., 1985). Geadelmann et al (1985) suggest that gender-integrated instruction often results in a watered down curriculum based on skill differences perceived to be too vast to accommodate, especially in activities such as team sports. The modification of game rules such as a girl touching a ball a specified number of times impairs the effective skill development of boys (Vertinsky, 1992).

The report of researchers on performance outcomes shows, little or no differences between coeducation and single-sex classes in such activities as volleyball (Koivula, 1982), and tennis (Brightwell, 1969). These results might be attributable to instructional time. Bischoff (1982), however, found that in spite of group choice and class structure, males were more successful in the execution of volleyball skills.

Lirgg (1993) and Treanor, Graber, Housner., and Wiegand. (1998) conducted studies that examined the perceptions of students in coeducational and same-sex classes. Lirgg assigned middle school and high school students to a 10 lesson unit in basketball in either coeducational or same-sex classes. Treanor et.al assigned students in middle school to coeducational classes for a full semester and same-sex classes for a

full semester. The findings from both indicate that male and female middle high school students preferred same-sex classes and there is a trend toward greater confidence in same-sex classes for females.

On the basis of these studies, it seems reasonable to conclude that single-sex settings would be more conducive to learning for middle school girls and coeducational classes more profitable for boys. However as Griffin (1984) states, "before condemning one type of class and joining the clamor for a return to older days, physical educators need to take a closer look at what happens in these classes" (p. 30).

Physical Education in Middle School

There has been a renewed interest in improving the health status of our nation's youth through physical activity over the past decade. Numerous studies have cited the benefits of regular participation in physical activity (Sallis & McKenzie, 1991; U.S. Department of Health and Human Services, 1996). Although the benefits of habitual exercise and physical fitness are well documented, the mechanisms that inspire successful adherence to exercise routines are less well documented (McAuley, 1992). Researchers suggest that perceived physical competence beliefs about the nature of ability and conceptions of competence are precursors to positive motivational patterns in students (Nicholls, 1984). One's ability to be physically competent in physical activity is an important adherent to participation (Freedson & Bunker, 1997). Schools provide students the opportunity to participate in physical education classes where perceived physical competence in motor skill development can occur (Freedson & Bunker, 1997).

In an attempt to determine which factors trigger the pursuit or avoidance of exercise behavior, researchers have investigated the constructs of self-perceptions, which are commonly thought to be important mechanisms for mediating exercise behavior (Blair, Kohn, Paffenbarger, Clark, Cooper, & Gibbons, 1989). Having knowledge of such information will contribute to the implementation of important means

needed to ensure that the goals for successful adherence to exercise behavior will be met. Discovering which factors influence a child's self-efficacy while participating in physical activity should be helpful in influencing their continued pursuit of it.

According to Taylor (1980), "an important relationship exists between the physical skills of a child and her self-concept. When she feels competent, she is willing to attempt new and different experiences" (p.137). If she believes that she cannot succeed in a situation, it leads her to withdraw from the experience. Physical educators have always believed that physical activity is an important agency that develops the person in a desirable way. It is believed that all adolescents can learn motor skills, develop self-esteem, maintain health and fitness, and develop positive socials through a variety of alternative modes and physical activity. However, this mere involvement in physical education is unlikely to produce changes in self-efficacy (Martens, 1975). Ultimately, the physical education program must provide movement experiences that produce a meaningful and purposeful realization of the self (Kleinman, 1972).

In a visit to a middle school physical education class, one would easily see the differences in maturity among the students (Stafford, 1982). Boys and girls differ in their development and in their attitudes towards physical activity (Evans, 1993). Whereas, boys are actively involved in physical activity, girls' loose interest as they reach adolescence (Scraton, 1990). Adolescent girls, according to Carrington and Leaman (1986), may show ambivalence toward physical activity because they reflect on their attitudes, values and ideas during this time. Brown and Gilligan (1992) found that younger female adolescents are confident of who they are and what they know and they have a belief in their integrity and in their responsibilities toward the world. However, as they get older adolescent girls undergo a kind of crisis in response to adolescence and to the strictures and demands of the culture; they tend to go underground.

Engle (1994) points out that incompatibility between femininity and physical activity becomes acute in adolescence when the girl's status is linked to their femininity. Some girls at this stage, are often involved in constructing their notions of femininity and are preoccupied with boys (Carrington & Leaman, 1986). However, many females are endeavoring to satisfy their desire for physical activity. Investigators hypothesize that self-efficacy is of prime importance to a person participating in physical ventures. Brown and Gilligan (1992) cite that relationships between adolescent girls and adult women are extremely critical during the transition into adolescence. Thus activities must be developed that foster these relationships in order to strengthen girls' capacities for resistance, courage, and creativity, and how to face the fears of displeasing others.

It has been suggested that participation in physical activity enhances self-esteem, which may be shown in changes in attitude towards school and facilitated achievement (Coonan, 1985). Tobin (1980) asserts that girls are frequently reluctant to participate in coeducation classes because they feel inadequate. Duquin (1981), however, asserts that the definitions of masculinity and femininity have been imposed upon sporting activities, though sport is not intrinsically gendered. As such, sport has been perceived as both a natural and desirable activity for boys, while, at the time, an inappropriate or at best unimportant activity for girl. Until sex role socialization of young children is decreased and sport becomes more sex neutral, girls may find their participation in traditionally male physical activity programs less than satisfying (Duquin, 1978).

Only a few studies have been conducted at the junior high school level on the coeducation and single-sex differences in physical education. Most suggest that despite the change from sex separate to coeducational classes as required by Title IX, sex stereotyping and inequity continue to be a problem (Bischoff, 1982; Griffin, 1981, 1983, 1984). Griffin's (1985) study on participation styles noted that boys hassled girls during

participation, while girls did not limit boys' opportunities.). This is attributed to maturation differences between boys and girls, two years (Stafford, 1982). Griffin's (1983,1984) observations suggest the physical education is being actively resisted by a number of girls in schools and this resistance needs to be viewed in relation to the production and reproduction of gender relations in physical education. Many girls viewed physical education as irrelevant and boring (Griffin, 1983, 1984). Findings from a class preference analysis highlighted that middle school students' prefer same-sex classes (Lirgg, 1993

Flanagan (1980) found no differences between students in single-sex and coeducation learning basketball skills. Muskgrove (1986) reported in a study of volleyball and table tennis units that single-sex classes had more time on task and coeducational classes had more motor-appropriate time—pointing to more active participation.

Research in Other Disciplines

The research documents gender differences between males and females in other subject areas with regard to girl's lower academic performances and under representation; specifically, in math education. The research seeks to explain the differences in terms of cognitive ability. The research findings has documented sex differences, girls perform less well than boys, and explains the existence of differences that exists within this discipline in terms of achievement and confidence within single-sex and coeducational settings.

Math Education

The research in math education shows evidence to support the assertion that females underachieve in relation to males. The relationship between gender and self-efficacy has not been explored as thoroughly as that between gender and academic performance. Recent findings suggest that gender differences in mathematics

achievement are either diminishing or practically non-existent; other contemporary researchers have found that gender differences in the mathematics confidence of American students may still be prevalent (Eisenberg, Maring, & Fabes, 1996). The research indicates that girls are less likely than boys to participate in mathematics at the more senior levels of secondary schooling (Eccles, 1984), and are less achieving (Heller & Parsons, 1981; Sherman 1980).

Of all the cognitive skills, mathematics performance has been thought to show the largest differences in favor of males. Though these differences are not usually evident in grade school, they emerge during adolescence, and researchers concluded that boys excel in mathematical ability (Maccoby & Jacklin, 1974). Some reasons for the achievement differences between males and females in math pointed out by the research include fewer role models (Brophy & Goode, 1974); the avoidance of higher level math classes (Fennema & Sherman, 1977); and the perception of math being a male-oriented subject (Sherman, 1980). Fennema and Sherman (1977) found no significant difference between the sexes in mathematics achievement. The differences, when found, were attributed to attitude not ability. Meece, Wigfield, and Eccles (1990) reported mathematics achievement differences were due to higher self-efficacy in boys.

Fennema and Sherman (1977) examined self-perception variables that may influence the achievement differences between boys and girls. They found that girls have less confidence than boys in learning mathematics even if they have the same ability levels. Bandura & Schunk (1981) found that confidence was significantly related to mathematics achievement. Fennema & Sherman (1977) found that confidence for performing mathematic was significantly related to class enrollment behavior.

Rowe (1988) examined the effect of class type on mathematics' achievement and the variables affecting achievement. Rowe found a strong relationship between achievement and confidence, particularly for students in same-sex classes. Also he

found that students in same-sex classes improved in confidence overtime—this improved confidence was a significant predictor of student enrollment in upper level math classes for the following year. Finally in the study, he reported that boys who were switched to single-sex math classes increased in there confidence; whereas girls who were switched to coeducational math classes decreased in confidence. The math literature shows that differences in students' perceptions may be related to the class type in which one learns.

Overview of Self-efficacy

The self-efficacy construct is derived from Bandura's (1986) social cognitive theory which states that individuals possess beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions, that "what people think, believe, and feel affects how they behave" (p. 25). This self system provides reference mechanisms and a set of sub-functions for perceiving, regulating, and evaluating behavior, which results from the interplay between the system and environmental sources of influences (Bandura, 1986). Of all beliefs, *self-efficacy*, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391), is the most influential arbiter in human agency. It plays a powerful role in determining the choices people make, the effort they will expend, how long they will persevere in the face of challenge, and the degree of anxiety or confidence they will bring to the task at hand. It is this perceived self-efficacy that helps explain why people's behavior differs widely even when they have similar knowledge and skills. What we do, how we behave, is better predicted by our beliefs about our capabilities than by what we are actually capable of accomplishing, but "competent functioning" requires accuracy of perception and harmony between self-efficacy beliefs on the one hand and possessed skills and knowledge on the other.

According to Bandara (1986), the way in which people interpret the results of their own performance attainments informs and alters their environments and their self-beliefs, which in turn inform and alter subsequent performance. Bandura provided a view of human behavior in which the beliefs that people have about themselves are key elements in the exercise of control and personal agency and in which individuals are viewed both as products and as producers of their own environments and of their social system.

Bandura (1986) states that, through the process of self-reflection, individuals are able to evaluate their experiences and thought processes. According to this view, that people know, the skills they possess, or what they have previously accomplished are not always good predictors of subsequent attainments because the beliefs they hold about their capabilities powerfully influence the ways in which they will behave. Consequently, how people behave is both mediated by their beliefs about their capabilities and can often be better predicted by these beliefs that by the results of their pervious performances. As such, self-perceptions of capability help determine what individuals do with the knowledge and skill they have. More importantly, self-efficacy beliefs are critical determinants of how well knowledge and skill are acquired in the beginning.

The process of creating and using these self-beliefs is an intuitive one: individuals engage in a behavior, interpret the results of their actions, use there interpretations to create and develop beliefs about their capability to engage in subsequent behaviors in similar domains, and behave in concert with the belief created. In school, for example, the beliefs that students develop about their academic capabilities help determine what they do with the knowledge and skills they have learned. Consequently, their academic performances are in part the result of what they come to believe that they have accomplished and can accomplish. This helps explain why students' academic performances may differ markedly when they have similar

ability. This view of self-belief, as a mediating construct in human behavior, is consistent with those of numerous scholars and theorists. They have argued that the potent evaluative nature of beliefs makes them a filter through which new phenomena are interpreted and subsequent behavior mediated (Goodlman, 1988; James, 1975; Lewis, 1991; Mead, 1982; Nisbett & Ross, 1980; Pajares, 1992).

The results of a study by Bandura (1977) indicate that self-beliefs affect behavior in several ways. First, they influence choice of activities. People are likely to engage in tasks in which they feel competent and confident and avoid those in which they do not. The stronger one's convictions are that he or she is able to successfully produce the desired out, the more likely one is to choose to perform or persist in that task. Individuals with high efficacy beliefs but poor skills, for example, may behave in concert with their sense of efficacy, but the consequences may cause "serious, irreparable harm" (p. 394). Individuals with low sense of efficacy but high skill may suffer from a debilitating lack of confidence and fail to undertake tasks they are perfectly capable of completing. Bandura suggests that behavior is largely determined by efficacy beliefs rather than by outcome expectations or by the knowledge and skills we possess. Our assessment of our own capabilities, he argued, is basically responsible for the outcomes we expect and for the knowledge and skills we seek and acquire. The stronger one's convictions are that one is able to successfully produce the desired outcome; the more likely one is to choose to perform or persist in that task. When difficulties arise, those high in self-efficacy will exert greater effort to overcome the difficulties than those who entertain self-doubts. In addition, highly efficacious individuals will maintain that effort longer, increasing probabilities for success, and thereby strengthening their beliefs. However, a lack of confidence decreases the likelihood that one will choose to do activities in a particular area and also leads to a decrease in one's persistence and effort in the face of difficulties, limiting opportunities for improved performance (Bandura, 1986). Thus, the

perceptions of competence or incompetence that one holds are the mediators of performance and persistence. Hence, self-efficacy is a more powerful determiner of the choices that individuals make than either anticipated outcomes or the actual skills and knowledge relevant to the behavior in question (Parajes, 1999).

Second, self-beliefs help determine how much effort people will expend on an activity and how long they will persevere. The higher the sense of efficacy the individual has, the greater her effort expenditure and persistence in the task. Pajares (1999) states that this function of self-beliefs helps create a type of self-fulfilling prophecy, for the perseverance associated with high efficacy is likely to lead to increased performance which in turn raises sense of efficacy, whereas the giving-in associated with low efficacy limits the potential for improving self perceptions. Bandura points out that the effects of efficacy differ for individuals learning a task and for those performing established skills. Low self-efficacy in a student, for example, creates a self-doubt that may provide a needed impetus for learning. In a similar situation, high sense of efficacy may mislead a student into feeling that less effort and preparation are necessary. It is when one is applying skills that high efficacy may more likely serve to sustain and intensify effort, and it is in this situation that self-doubt may be debilitating.

Third, self-beliefs affect behavior by influencing an individual's thought patterns and emotional reactions. People with low efficacy may believe that things are tougher than they really are a belief that may foster stress and narrow vision of how best to go about a problem. High efficacy, on the other hand, may be responsible for feelings of confidence and serenity in approaching difficult tasks. Failure in an area where we have a very high sense of efficacy may just as easily be interpreted as failure of self rather than lack of effort.

Lastly, self-beliefs affect behavior by recognizing that humans are producers of behavior. Self-confidence breeds success, which in turn breeds more challenging

performance; self-doubt on the other hand breeds hesitancy, defeat, and failure to try. One's perceptions of efficacy help determine how she thinks, feel, and behave. Ulrich (1987) points out that when one feels competent, a feeling of efficacy is produced and the performance is likely to be repeated. This indicate that people actively uses self-beliefs to influence how they behave.

Overall, Bandura paints a portrait of human behavior and motivations in which the beliefs that people have about them are key elements to their behavior. To better understand the nature of self-efficacy beliefs it may be useful to explain how they are acquired and how they influence motivational and self-regulatory process.

Sources of Self-efficacy Beliefs

Self-efficacy information, whether accurate or faulty, is based on four principal sources: (a) enactive mastery, (b) vicarious experiences, (c) verbal persuasions, and (d) physiological index. Self-efficacy is what students infer from the information from these sources. The most influential source of efficacy beliefs, enactive mastery, is based on the interpreted result of one's past performances. The degree to which one succeeds at these past performance accomplishments can create a strong sense of efficacy to accomplish similar task in the future. If the outcomes are interpreted as successful then there is heighten perceived self-efficacy: repeated failures lower it, especially if failures occur early in the course of events and do not reflect lack of effort or adverse external circumstances. Bandura (1986) emphasizes that one's mastery experiences are the most influential source of self-efficacy information has important implication for learners to increase achievement in school. Teachers should focus on altering student's beliefs of their self-worth or competence. This can be accomplished through tasks they can succeed at with modest effort.

Vicarious experiences are the second source of efficacy information and is

produced by observing the actions of others such as friends modeling a task. By observing the successes and failures of others, people gather the information necessary to make judgments about their own capabilities. Though this source of information is weaker than enactive attainments, it can be a powerful influence on developing self-perceptions of competence (Schunk, 1983). When people are uncertain about their own abilities or have limited prior experience it has demonstrated that the effects of models are particularly relevant in this context (Schunk, 1981, 1987). A significant model in one's life can help instill self-beliefs that will influence the course and direction that one will take. Seeing similar others perform successfully raise efficacy expectations, by the same token it can lower competence of the observer—seeing someone of similar ability succeed in light of one's failure.

Verbal persuasion gives people information they can interpret and convinces people that they possess the skill to accomplish a task. These persuasions develop the person's belief in his or her capabilities while at the same time ensuring that the envisioned success is attainable. Cognitive guidance is especially influential in the early and intermediate phases of skill development. Bandura (1986) says it is easier to weaken self-efficacy beliefs through negative appraisals that to strengthen such beliefs through positive encouragement. Therefore the more credible the messenger the more the learner believes she will succeed at the task.

Physiological states such as stress, arousal, fatigue, anxiety, and mood states provide information about one's self-efficacy. How a person feels before, during and after engaging in a task often gauges their confidence by the emotional state they experience as they contemplate an action. Bandura (1997) observed that people live with psychic environments that are primarily of their own making. Signs of uneasiness may be interpreted as indicators of susceptibility to failure. When a person experiences dreadful thoughts and fears about their capabilities, it can lower their perceptions of

capability and trigger the stress and agitation that can bring about the poor performance they fear. A state of arousal may seen as an energizing factor that can contribute to a successful performance, or it may be seen as completely disabling. Bandura (1986, 1997) has made the strong claim that beliefs of personal efficacy constitute the key factor of human agency.

Self-Efficacy in Education

The mediational role of judgments of self-efficacy in human behavior is a complex one and is affected by a number of factors. In the educational arena, the self-efficacy theory has served as the conceptual framework for numerous studies. Research findings generally support Bandura's (1986) contention that efficacy beliefs mediate the effect of skill or other self-beliefs on subsequent performance attainments (Bandura, 1997, Schunk, 1991). Perceptions of capability exercise a powerful influence on academic achievement and on motivational constructs (Pajares, 1996, 1997, Schrunk 1991). Researchers have also demonstrated that self-efficacy beliefs influence these attainments by influencing effort, persistence, and perseverance (Bandura & Schunk, 1981; Schunk & Hanson, 1985). Collins (1982) identified children of low, middle, and high mathematics ability who had, within each ability level, either high or low mathematics self-efficacy. After instruction, the children were given new problems to solve and an opportunity to rework those they missed. Collins reported that ability was related to performance but that, regardless of ability level, children with high self-efficacy completed more problems correctly and reworked more of the ones they missed. (for studying the effects on individual differences within a developmental context.

Schunk (1985) used Bandura's theory to render an understanding of what he termed "motivated learning." In this postulate, motivated learners are pushed to acquire skills and knowledge during activities rather than simply completing the activities. Because children's self-efficacy is cultivated partly in school during their crucial formative

years of life, Schunk stressed the importance of children possessing the necessary incentives to perform. Students low in self-efficacy may work unenthusiastically on a task because they doubt their ability to perform well. Even highly efficacious students might work just as lackadaisically, not because of self-doubt but because completing the task may be unimportant to them.

Programs of physical activity must enhance students' beliefs in their ability to exercise if exercise enjoyment is to continue through a lifetime (Ferguson, & Yesalis, & Pomrehn, & Kirkpatrick, 1989). Blair et al. (1989) postulate that adults' disinclination to exercise is linked to a lack of favorable physical activity during adolescence. Thus far, research has demonstrated a moderate to strong correlation between self-efficacy and sport or exercise performance among both adolescents and adults (Feltz, 1982; Weiss, & Wiese, & Klint, 1989); other research reports a positive effect on the physical and psychological health of adolescents, especially those who are experiencing stress (Blair, 1993).

The model of mathematics achievement proposed by Fennema and Peterson (1985) that draws from Bandura's self-efficacy theory hypothesizes that a person must be engaged in autonomous learning behavior. That is, working independently on high-level tasks, persisting at those tasks, and being successful at those tasks. As to whether a person enlists in automatic learning behavior is dependent upon her motivation beliefs and societal influence. Motivational behavior includes confidence in one's ability to learn, gender-role orientation, perceived-usefulness of the task engage in, and attribution style.

One of the two societal influences that were considered most important by Fennema and Peterson was classroom activities in which boys and girls participate. Schunk (1984) indicates that class context is an important factor related to one's self-efficacy beliefs. Some researchers have found that boys and girls in the same learning

context may perceive the environment differently (Brophy, 1985, Eccles & Blumenthal, 1985). Eccles and Blumenthal (1985) indicate that some environments (coeducational) may enhance achievement in boys, while the same context may impede or have slight positive effect on girls' achievement. They felt that even the brightest girls, in some classrooms, were not nurtured to the same degree as boys. As such, the classroom environment may play a role in underlying differences in boys and girls attitudes, beliefs, and performances.

Summary

This chapter has contained the survey of literature. In sum, evidence based on the review of literature for same-sex and coeducational classrooms have been the subject of controversy over the years. For both, opponents and supporters of these contexts the literature has produced arguments in support of their position. Although the research has been equivocal, cumulative results from these studies suggest a trend toward greater confidence in same-sex classes for middle school boys and girls.

The results of both camps seem to agree that it is obvious that boys tend to benefit from the coeducational setting, while females may remain disadvantaged. There is little empirical data regarding the effectiveness of coeducational and same-sex physical education. Quantitative research is somewhat divided, but observational research in physical education does not place a bright light on coeducation for females.

Since physical education has been recognized as the discipline for the promotion physical activity, examining student's perceptions about themselves in physical activities within coeducational or same-sex physical education context must be undertaken to identify the environments that have the potential to foster the development of self-efficacy for both genders. Also, to assist physical educators in developing learning environments which are conducive for both males and females. The role that self-

efficacy has in achievement in relation to class context (i.e. same-sex or coeducational) has shown that confidence may be mediated by class context. Since the conveyance of expectations is mediated through the eyes of the student, physical educators may be able to monitor their students' perceptions and devise strategies to improve the learning environment for all students.

The purpose of this experiment was to examine perceptions that middle school girls' had about same-sex and coeducational on a volleyball unit in physical education.

CHAPTER III

Research Procedures

The purpose of this study is twofold: (1) to assess the effects of coeducational and sex-segregated classes on several self-efficacy variables in middle school girls' while participating in unit of volleyball; and (2) to determine the influence of these variables upon middle school girls' efficacy for learning volleyball. The proposal for the dissertation research will be quasi-experimental. An analysis of student surveys, student questionnaires, and student interviews will provide a picture of the student's experiences in coeducation and same-sex physical education environments. This chapter will focus upon the participants and setting, procedures, design, instrumentation, procedures and the data analysis strategy to be used to conduct the study. They are as follows:

Participants and Setting

The participants for this study were seventh and eighth grade female students enrolled in required coeducational physical education classes at the middle schools in South Central-Kentucky. The sample represents a cross section of ethnic categories. Four intact certified physical education specialists from two Middle Schools were used in the study. All of the teachers were female. In two of the classes, students were split out according to gender with males being taught by one instructor and the females being taught by the other instructor. For the coeducational classes, the students were randomly assigned to either of the teachers, with boys and girls evenly divided between the two classes. Essentially two new classes were created at each school. For the study, each teacher taught one same-sex class and one coeducational class for 10 lessons of volleyball. The teachers were required to keep attendance and follow the lesson plans provided by the researcher. The researcher observed three instructional periods during data collection and found teachers essentially followed the lesson plans.

Dependent Measures

A questionnaire was designed to gather data about students' beliefs related towards volleyball. The questionnaire was adapted from three of Fennema and Sherman's Mathematics Attitude Scale (1976). The Fennema-Sherman Mathematics Attitude Scale (FSMA) has been used in numerous research studies and has been statistically validated. The original scale consists of ten separate scales designed to measure domain–specific attitudes related to the learning of mathematics by students. Each scale consists of 12 statements related to the learning of mathematics. Six are positively worded and six are negatively worded. Individuals respond to a statement indicating the degree to whether they agree or disagree with the statement. For the purpose of this study, the survey adapted three of the FSMA scales, which consist of 10 statements that bore directly on the research hypothesis. The selected scales were: The Confidence for Learning Volleyball Scale, The Volleyball Usefulness Scale and The Gender-appropriateness of Volleyball Scale. The Confidence in Learning Volleyball Scale measures girls' confidence in their ability to learn and perform well in volleyball. The Gender- appropriateness of Volleyball Scale measures the degree to which a girl perceives volleyball as a masculine sport; i.e. more appropriate for boys. The Usefulness of Volleyball Scale measures the degree to which girls feel that learning volleyball be useful for recreation activities in later life. The reliability of the new instrument was evaluated for internal consistency of the subscales with the responses from 30 students in the pilot study

Self-perception Variables

Confidence for Learning Volleyball Scale. This scale was adapted from the Fennema and Sherman's Self-confidence for Learning Mathematics Scale (1976). It is intended to measure the confidence in one's ability to learn and to perform volleyball tasks. The word mathematics was replaced with the word volleyball (Sample item:

Generally, I feel confident about attempting skills in volleyball). A student's confidence in learning volleyball score is the mean of the 10 questions employed in the scale, with the higher scores indicating greater confidence. This scale which ranges from lack of confidence to definite confidence measures a student's overall confidence in learning volleyball skills and is included in Appendix A. Fennema and Sherman reported a split-half reliability of .93 in the original scale. Split-half reliability for subjects in this study was .87.

Gender-appropriateness of Volleyball Scale. The perception of volleyball as masculine (i.e. volleyball is more appropriate for males) will be measured using a scale adapted from Fennema and Sherman's Math as a Male Domain Scale (1976). This scale also uses a 10-item questionnaire with a 5-point Likert Scale (Appendix A). The positive items will be reversed scored so that the higher scores will reflect a greater perception of volleyball as a masculine activity. Split-half reliability for the Fennema and Sherman's original scale of 12 items was .87. Split-half reliability for the subjects in this study was .82.

Usefulness of Volleyball Scale. The usefulness of volleyball scale is designed to measure students' beliefs about the usefulness of learning volleyball tasks currently and in relation to future leisure time pursuits. This scale was adapted from Fennema & Sherman's Usefulness of Mathematics Scale (1976) that is included in Appendix A. As in the previous two scales, the questionnaire has 10 items and employs a 5-point Likert scale. Fennema and Sherman reported a split-half reliability of .88 for the 12 items on their scale. Split-half for the subjects in this study was .77.

Results of the split-half reliability tests on the pilot test supported the internal consistency within each scale.

Procedure

Permission to use human subjects to conduct the study was obtained from Virginia Tech University HSRB and Western Kentucky University. In addition, permission was received from public school administrators, physical education teachers, parents, and the students themselves for participation in the experiment.

Consent Forms

Participants were eligible to participate in the study if they received parental consent and volunteered to be involved in the study. Before the study began, a letter was sent home to the parents to explain the study and to obtain the parent's permission to have the student included in the study. The parents had to sign a consent form before a child could be included in the data collection (see Appendix C). Students who did not receive permission to be included in the study, or who chose not to participate, continued to participate in the activities of the class but were not allowed to complete the questionnaire at the beginning and at the conclusion of the study.

Instruments

The data for this study was collected from the following sources: (a) survey on the Volleyball Attitudinal Scale, (b) a student post-intervention questionnaire, (c) informal student interviews, and (d) informal teacher interviews. A description of each method follows.

Volleyball Attitude Scale. Student attitudes were measured using a questionnaire adapted from the Fennema-Sherman Mathematics Attitude (1976) scale with minor word changes from "mathematics" to "volleyball" to accommodate the content area. The scale consisted of 30 statements, which dealt with students' perceived importance of volleyball. A five-point response Likert scale format was employed to obtain data from the students with 5 positively worded and 5 negatively worded

questions in each scale. The students were asked to respond to each statement indicating the degree to which they agreed or disagreed with that statement. The responses ranged from strongly agree to strongly disagree. Scale means are reported as mean item scores, so they have a range of 1 to 5, a high score represents agreement with the concept. Cronbach's alpha was used to examine the reliability of the scales (see Appendix A).

Post intervention questionnaire. The post questionnaire was adapted from Lirgg's (1993) questionnaire of student preferences for basketball classes to determine student's perceptions of coeducation and single-sex basketball classes. The questionnaire is modified to reflect a change in wording from basketball to volleyball. The students were asked to indicate their preferences for coeducational or single-sex classes, complete open ended questions on their likes and dislike about coeducational classes, and indicate what they believed about their skill ability. The students' responses to the post questionnaire allowed the researcher to draw conclusions of the students' preference for coeducational or single-sex classes. These results provide an integral part to this study. The post intervention questionnaire is contained in Appendix B.

Informal Student Interview. Student's who returned completed parental permission forms were allowed to participate in the interviews. The student interviews were conducted to further probe into the participants' thoughts and experiences about their beliefs, reactions and preference for single-sex and coeducational physical education classes and volleyball classes. Student and interviews were analyzed using constant comparison (LeCompte & Priessle, 1993; Lincoln & Guba, 1985). Comments gathered from all the interviews were written on index cards, compiled and then transcribed to provide a composite of the student's perspectives on coeducation and single-sex classes. Each card was read and reread to identify categories. Once the categories were defined and grouped into similar ideas, the responses were coded and

frequency counts were computed for the themes identified from the data. Some information acquired during the interview process that was not relevant to the heart of this study was discarded. The interviews took place at the end of an observed class and each interview typically lasted less than 5 minutes. At least two students and not more than four were selected by the researcher to be interviewed after the observed classes (see Appendix E).

Informal Teacher Interview. Informal teacher interviews were conducted at the end of the study with each of the teachers to gain insight from the teachers on their observations of the student's behavior during the unit. Each teacher was asked the same questions and were allowed to provide additional information if they choose to. These interviews took place at the end of the study during the teacher planning time and lasted 30-45 minutes (see Appendix F).

Procedures for Data Collection and Analysis

The first phase of the data was collected approximately a week before the experiment, the subjects completed the Volleyball Attitude Scale which consisted of the demographic section along with following subscales: Confidence in Learning Volleyball Scale, the Usefulness of Volleyball Scale, and the Gender-appropriateness of Volleyball Scale while still in their regular physical education classes (that is, before new coeducational classes were constructed). The experimenter administered the questionnaire. Confidentiality of the questionnaires was maintained by assigning each student an ID number. Students were informed that all data would remain anonymous and would be used only for research purposes. However, they were not told the specific purpose of the study.

After the classes were assigned as either coeducational or same-sex, the students in the coeducational classes will be randomly assigned to the teachers. The physical education teachers enlisted in this study implemented the treatment that

consisted of a 10-lesson unit on volleyball lasting two weeks. To keep the consistency between the schools, the teachers were given identical lesson plans (see Appendix D). Additionally, the teachers were given a schedule of events, and a packet of volleyball instructional materials. Each class is inherently different; therefore the pace at which the lesson is executed may differ based upon the ability level of the students. Throughout the experiment, the researcher visited each of the classes three times to insure that the procedures are implemented correctly.

At the end of the 2- week session, the subjects were post-tested on the Volleyball Attitude Scale consisting of the Confidence in Learning Volleyball Scale, the Usefulness of Volleyball Scale, and the Gender-appropriateness of Basketball Scale. The forms were completed the same as for the pretest.

To examine whether the self-efficacy of girls in the coeducational classes differed from the self-efficacy of girls in the same-sex classes on the self-perception variables, quantitative and qualitative methods were used.

Chapter IV

RESULTS

Data and Descriptive Statistics

The purpose of this study is twofold: (1) to assess the effects of coeducational and sex-segregated classes on several self-efficacy variables in middle school girls' while participating in unit of volleyball; and (2) to determine the influence of these variables upon middle school girls' efficacy for learning volleyball. This chapter presents the results from the study. Data were analyzed using both quantitative and qualitative approaches to better examine the impact of the environments on student's self-efficacy. In the first section, means, standard deviation and t-test were used to address the research hypothesis. In the second section, frequency counts and chi-square analyses were used to describe student responses to the post intervention questionnaire. Student and teacher interviews were analyzed using constant comparison (LeCompte & Priessle, 1993; Lincoln & Guba, 1985). Comments from the interviews were written on index cards then transcribed, read and reread to identify categories. Once the categories were defined and grouped by similar ideas, the responses were coded and frequency counts were computed for the themes identified from the data. Some information that was acquired during the interview process was discarded, because the contents were irrelevant to the heart of the study. The results are presented in the order of findings from the student surveys, the post questionnaire, findings from student interviews, and findings from teacher interviews.

Experimental Hypotheses

Effects of Class Type on the Self-perception Variables

The Research Hypothesis stated that girls in single sex classes would exhibit significantly higher self-efficacy for learning volleyball than would girls in coeducational classes. To examine these effects, the students completed the questionnaire for Self-Confidence for Learning Volleyball Scale, which was adapted from the Fennema and Sherman's Self-Confidence for Learning Mathematics Scale (1976). The Self-Confidence for Learning Volleyball Scale contains three sub-scales constructs that measure self-efficacy (self-confidence for learning volleyball, gender-appropriateness of volleyball, and usefulness of volleyball). Means, standard deviations, and a t-test were used to explore the hypothetical relationships among the variables.

The means and standard deviations for sub-scales (self-confidence for learning volleyball, gender-appropriateness of volleyball, and usefulness of volleyball) on the SPS are presented in Table 1. Table 2 presents the results of the t-Test for the post-test group comparisons. There were 139 questionnaires completed for both single-sex environment (N=71) and coeducational environment (68). Thirty questions were scored utilizing a scale ranging from 1-4, with 4 representing higher levels of confidence, and mean values were computed. The means and standard deviations of girls' scores from the self-efficacy subscales show that girls in single-sex environments had stronger self-efficacy for learning volleyball than girls in coeducational environments.

Table 1 Means and Standard Deviations for Self Perception Variables

	Pretest		Posttest	
	Single-sex *N* = 71	Coeducation *N* = 68	Single-sex *N* = 71	Coeducation *N* = 68
Confidence	3.61 (.76)	3.51 (.68)	3.83 (.80)	3.42 (.73)
Usefulness	3.48 (.76)	3.33 (.66)	3.62 (.73)	3.30 (.65)
Gender-appropriate	4.18 (.51)	3.92 (.55)	4.30 (.55)	3.93 (.55)

Table 2 T-Test for Post-Test for Group Comparisons

Self-Efficacy Variables	Degrees of Freedom	*t*
Confidence	137	3.19***
Usefulness	137	3.88***
Gender-appropriate	137	2.71***

***$p<.05$

Summary of Experimental Hypothesis

The research hypothesis was supported. The results of a t-test comparing the self-efficacy variables of girls in single sex classes with girls in coeducational classes showed that significant differences existed between the groups. Girls in single-sex volleyball classes were significantly more positive on each the self-efficacy variables than girls in coeducational volleyball classes; confidence levels *(t* = 3.19, *df* = 137, *p* < .05), usefulness of volleyball (t = 3.88, df = 137, p < .05), and gender-appropriateness of volleyball (t = 2.71, df = 137, p + < .05).

There were no pre-test differences on the subscales between the groups. Mean scores increased from pre- to posttest on each of the subscales for girls in single-sex classes. On the other hand, there was a decline in mean scores from pre- to posttest in two of the subscales (self-confidence for learning volleyball and usefulness of volleyball) for girls in coeducational classes. Though there was a slight increase in the mean for the gender-appropriateness of volleyball subscale (*M* = 3.92 for pretest; 3.93 for posttest).

Post-Intervention Questionnaire

The results in this section are divided into two parts. The first part reports the results of the chi square analyses of student preferences for single-sex or coeducational physical education classes and volleyball classes. The second part is qualitative and reports the breakdown of students' likes and dislikes of coeducational classes.

Student Preferences. The students were given a post-intervention questionnaire at the end of the study and were asked to respond to a series of questions indicating whether they preferred single-sex or coeducational physical education classes as well as single-sex or coeducational volleyball classes. They were also asked to indicate whether they thought they were as good as, better than, or of the same ability as other girls in their class. The frequency count of student preferences for coeducation or single-

sex physical education classes suggests that, overall, 53% of the girls preferred single-sex physical education classes and 47% preferred coeducation physical classes. The frequency table for student preference for physical education class is shown in Table 3. Student preferences for volleyball class type paralleled those reported for physical education class type preference. Fifty two percent of the girls preferred single-sex volleyball classes and 48% preferred coeducation volleyball classes. The frequency table for student preference for volleyball class is shown in Table 4. The findings on the chi square analyses revealed that there was a significant relationship between the skill level of students and student preferences for single-sex or coeducation physical education classes as well as their preference for single-sex or coeducation volleyball classes. Girls who perceived their ability to be below that of other girls preferred same-sex physical education classes, X^2 =22.546, *df* =2, p<.001. Conversely, girls who perceived their ability to be above that of other girls preferred coeducation physical education, X^2 = 14.491, *df* =2, p<.001. The table of correlations is presented in Table 5 and Table 6.

Table 3 Percentage Frequency for Student Preference for P.E. Class

Class Type	Frequency (*f*)	Percentage Frequency
Coeducation	65	47
Single-Sex	72	53
Total	137	100

Table 4 Percentage Frequency for Student Preference for Volleyball Class

Class Type	Frequency (*f*)	Percentage Frequency
Coeducation	66	48
Single-Sex	71	52
Total	137	100

Table 5 Table of Correlations for Skill and P.E. Class Preference

Class Type	High Skill		Low Skill	Average Skill
Single-Sex	17.3%		75.8%	51.2%
Coeductional	75.0%		24.2%	47.5%
	Value	df	Significance	
Pearson Chi-Square	**14.491**	**2**	**.001**	

Table 6 Table of Correlations for Skill and Volleyball Class Type Preference

	High Skill		Low Skill	Average Skill
Class Type				
Single Sex	12.5%		75.8%	53.7%
Coeducational	87.5%		24.2%	46.3%
	Value	df	Significance	
Pearson Chi-Square	**22.546**	**2**	**.000**	

Open-ended Responses to Likes and Dislikes of Coeducational Classes.

The students were asked to respond to these questions in the post-intervention questionnaire, “What are some good things about having both boys and girls in the same gym class?” and “What are some bad things about having boys and girls in the same gym class?” There was a wide range of replies given to the first question, but only those categories with the larger responses are reported here (see Appendix B). The top response given was that there was more competition in coeducational classes (26%). Nineteen percent stated that boys played better and could teach the girls. Eighteen percent said girls could prove they could work just as hard as the boys. Approximately 13% of student responses focused on girls being able to socialize with the boys. Other top responses were boys had more strength and could get points for the team (10%), and boys had more energy (9%).

In response to the second question, overridingly the response was that boys hogged the ball, played rough, and were too competitive (54%). Approximately 17% of student responses listed boys got mad easily, or argued a lot. Other responses listing negative aspects of boys in coeducational classes were the boys picked on the girls (11%), and girls not getting to do anything (8%). Finally, a few girls responded (4%) that they were embarrassed playing with boys and scared of them.

Interview Analysis

Student Interviews. The students were asked to respond to their feelings or experiences of participating in their particular environments (single-sex or coeducational). This section reports the student responses to the interview. Immediately following the videotaping of the class, informal student interviews were conducted. At least two students and no more than four, who had volunteered to be interviewed, were selected for interviews from each class. Each interview lasted

between 5 and 7 minutes depending upon the responses from the students. A total of 38 female students were interviewed for this study, 20 from sex-separate physical education environments and 18 from coeducation physical education environments. None of the students interviewed had any previous experience in a single-sex volleyball class; all students had been involved in coeducational physical education classes only.

Coeducational Volleyball Classes

The themes that emerged during the analysis of the interviews by the girls are reflective of those comments made on the post questionnaire. The following overriding themes emerged during the data collection in the coeducational volleyball classes and are presented in this section: (a) comfortable working in single-sex groupings (b) male dominance (ball hogging, competitive and aggressive behavior) and (c) feelings of insignificance (girls' image and comfort level).

Comfortable Working in Single-Sex Groupings. During my observations of the coeducational classes, I noticed a natural segregation of the girls and boys. Whenever the teacher would have the students to get into partners or small group formations, the students would consistently self-select single gender formations. Throughout the unit, most of the girls, as well as the boys, partnered up with someone of the same-sex to practice skills. In addition, the girls tended to congregate on one side of the gym and the boys congregated on the other side. When asked about why this seemingly natural behavior of the grouping formation occurred, several students commented. Four girls described this practice in the following ways. "That's just the way it is. I really don't think about getting into a group with other girls at all…. it's just that when we partner up I get a girl to practice with rather than a boy… so I get into a group with them. I do feel more comfortable doing activity with other girls and its fun practicing with them because they don't yell at you like the boys." Another girl stated she wasn't aware that they separated into groups like that. She stated, "The boys are always playing by themselves so I just

look for another girl to partner with or other girls to get into groups with". Another young lady mentioned, "We always get into groups with girls, it just works really good. I really don't think we think about it. It's just the way it is." Still another young lady stated, "I don't usually get into a group with boys unless the teacher splits us up that way. I enjoy participating in groups with other girls they encourage you more than the boys do." Persistently, the girls expressed this theme throughout the interview. However, one highly skilled girl who grouped with the boys more frequently than the other girls commented that she preferred to practice and play with the boys instead of the girls, "I can play just as good as them", she said. "A lot of times the girls just don't try hard enough."

Male Dominance (Ball Hogging, Competitive and Aggressive Behavior). Many of the girls expressed the problem of male dominance in the class and indicated that boys' aggressive behavior was not welcomed. The following statements illustrate the tone of this theme. The boys dominated the activities and the girls were not pleased with the behavior. A number of girls commented that the boys are always taking over the game and they don't give the girls a chance to hit the ball, thus ruining playing volleyball for them. As one young girl explains, "If you actually try to hit the ball and miss it they get mad with you and move into your position. They don't let you try. They always get angry real quick and tease you if you don't hit the ball right. I really like volleyball. Its fun but we don't get a whole lot of opportunities to hit the ball or play a lot. It's hard playing with the boys. They need to move out of the way sometimes and let us try. They think they can play better than us and a lot of times they tell us to go and play on another court by ourselves". Finally a less skilled girl commented that, "sometimes I hate playing because the boys say they don't want the girls playing with them…and it's hard playing with them when they always want to take over the game. Most of the time it's not fun playing. They are rough and they do a lot of stupid things. A lot of times when the ball

comes to me I just try to get out their way because I know when the ball comes in my direction the boys are just going to jump over me and push me out of the way to get to it. They never give me a chance to try to hit the ball".

Feelings of Insignificance (Girls' Image and Comfort Level). A consistent theme that emerged across the responses was girls' feelings of insignificance and their concern for their image in front of the boys. When asked to comment on how they felt, girls expressed that they felt insignificant when they played with the boys and were left out of the activity. Most of the time they don't want us in the game and they don't pass the ball to you. As noted by one young lady, "I think a lot of the girls are embarrassed playing in front of the boys so they just don't play real hard. If you don't serve the ball right or get it over the net, the boys' make comments like we can't play, we can't hit the ball and they don't want us on their team. I would just rather sit out and watch them play that way you don't get teased if you mess up". Another student described her experience this way, "The boys really don't want us to play with them and they make you feel bad when you mess up. Actually I am pretty good at volleyball but when I play with them I'm afraid to play because I don't want to mess up and get teased. They think you are stupid if you can't play and they just don't appreciate us."

Single-sex Classes

The themes identified in the single-sex volleyball classes were similar to but differ from the female students' experiences in the coeducational environments. The themes that emerged were: (a) boys' competitiveness and dominating the play and (b) well-being and supportiveness in the all girls' volleyball classes

When girls were asked how they felt about participating in a volleyball class with all girls many of the girls made comparison between their single-sex volleyball class and their regular coeducation physical education class. The girls' responses indicated that they enjoyed the experience and expressed being more confident when playing

volleyball. As indicated by one girl who liked participating in the all girls' volleyball class, "The best thing that I like is getting to play without the boys in the class. They always hog the ball and don't let you hit the ball, but I get to hit the ball with the girls and this helps me to do better. The boys always want to run the game and they don't give you a chance to try to get better when you play. Playing with all girls had been fun. Most of the girls encourage you to try and give you the chance to hit the ball." When asked why she thought boys didn't give her a chance to hit the ball she said, "I guess they always want to win and don't want the girls to mess up and I think they think they can play better than us. They always take over the game." Another young lady stated the boys hardly ever try to pass the ball to you or let you get a hit in the game when we played together so I just had to stand around and watch them play. A lot of times if the ball did come right to me and I had to hit it, I was really scared that I would mess up because the boys complain if you don't hit it right. Playing with girls only has been great because I am calmer and I don't get scared to hit the ball. Check me out the next time you visit. I think I am better playing volleyball and I like it. The girls don't do all the yelling at you the way the boys do. They get really excited when the ball comes to you but most of the girls don't get mad like the boys if you miss the ball." When I asked her how she felt when some of the girls in the class got angry because she missed a ball, she stated, "I feel bad for missing the ball but I don't feel intimidated like I do with the boys. If I miss the ball, I still feel like I can make a contribution in the game for my team."

A low skilled girl described her experience this way, "When I played with the boys they NEVER let me hit the ball they always pushed me out of the way but the girls let me try even if I miss the ball." A final comment made by one girl about her experience playing with the boys in class, "Because I know the boys are going to yell if I miss the ball I sometimes just don't want to play. The boys make you feel bad when you don't do good so sometimes I don't feel good about myself when I am playing with them." Other

girls said that being in an all girls volleyball class was a lot better because they got to play a lot more and weren't afraid that a boy might hit them and hurt them when they played. As one girl put it, "I like playing with all girls because they don't try to show off or take over the game. They let me play and I can get better at playing now."

The other theme identified by the girls was the supportiveness of other girls when playing, not feeling intimidated, and more opportunity to play. One girl described why she liked the all girls' volleyball class this way, "I get to hit the ball a lot more times when it is all girls and I am a pretty good player. With the boys in the class you don't get the chance to play like you do with the girls. Girls don't do as much yelling at you as the boys. They want you to hit the ball but they don't get mad like the boys." "Its fun and you don't have to worry about the boys taking over the game. I don't feel embarrassed and I don't have to worry about what I look like when I am playing." "There isn't a lot of pressure on you like when the boys are around. They make you scared and you get tensed up so you don't play good." A high-skilled student said, "I like to hang out with the girls and its okay but I like playing with boys better because they are more competitive and I like more competition." A final comment on this theme given by one young lady was, "Its great just playing with other girls. We try to encourage each other to get better and play the best we can."

Girls in both environments were asked if they would take physical education if it were not a required content area. Responses were 100% affirmative from the students interviewed in the single-sex class, and 81% affirmative from the girls' interviewed in the coeducational classes. When asked which environment they would rather participate in, if given the opportunity to do so, 83% of all students' interviewed in the single-sex volleyball classes said they preferred a same-sex volleyball class; 17% said they preferred coeducational classes.

Teacher interviews. At the conclusion of the study, teacher interviews were conducted. The researcher set an assigned time to meet with each of the teachers that participated in the study to get their comments of the student interactions within the classroom environments. The interviews lasted approximately 30-40 minutes depending upon the information the teacher conveyed. The interviews were transcribed and the themes are presented in this section. Some selected quotes are provided for better insight into the teachers' thoughts and feelings of these environments. None of the teachers had taught in a single-sex classroom environment.

Single-sex environments

The one theme that prevailed from the teachers in the single-sex environments was: higher participation rates among the girls, especially the low-skilled students. All of the teachers felt that the girls participated much better in single-sex environments. Most of the teachers felt that their participation rate was much better in single-sex classes than in the coeducational physical education classes. Also, all of the teachers' noted the performance of the low skill students as being so much better and their confidence levels were much higher. "Most of the time the lower skilled girls shy away from the activity" stated one teacher. It is hard to get them to assert themselves fully in the activity. They just don't put forth as much effort as you would like for them to. Another teacher describes the participation rate of the girls in single-sex environments this way:

> The girls put a lot more effort into the activities on a whole when they play with themselves than they do when they play with the boys. You might get one or two higher skilled girls that play with the boys and compete but for the most part the other girls become competent bystanders. They try to look busy doing something but most of the time they are just not participating fully in the activity. Too many of them are just afraid to challenge the boys. But when they played among themselves they really went at it. They called for the ball and tried to get

to it during the game. When they play with the boys in volleyball they just stand in one spot basically because they know the boys will run in their space and get it. My higher-skilled girls really shine in the single-sex class.

Coeducational environments

The following themes emerged from the comments given by the teachers of their coeducational classes. The themes are: (a) boys taking over the activity, and (b) boys off-task behavior. The major themes given by the teachers paralleled the comments made by the students in the coeducational classes. One teacher stated that because the boys were more aggressive and assertive during the activity there was a tendency for the boys to take over the games not allowing the girls to get a lot of time on task. As stated by one teacher, “The boys tend to muscle over the girls in the class. They really don’t have a lot of respect for girls playing with them unless they have good skills. They tend to put the girls down and run over them as if they are not in the activity especially if the girl is lower skilled.” As noted by anther teacher, “it seems that the girls become frustrated with the boys for taking over the game and not letting them try to make any plays. When the girls are not on a team and have to play with the boys they usually play among themselves. There is a tendency for the boys and girls to self-select into single gender groups.

With regards to the second theme, the teachers indicated that the boys were usually more off-task than the girls who rarely gave them any problems during the class. “You have to always tell the boys to stop doing something that they shouldn’t be doing in the class; I believe it’s the testosterone,” stated one teacher. As described by another teacher, “the boys just have to be macho guys and show off their skills. Whenever you change a task you usually have to give the boys a few seconds to stop and then do what you ask of them to.”

The qualitative themes from female students in both environments identify similar experiences and concerns with boys in physical education classes. The teacher interviews provided similar themes regarding students in single-sex and coeducational physical education classes. 100% the teachers interviewed, 4 of 4, believed that the girls would have overall better experiences if they were in single-sex physical education classes at the middle school. Although they felt that the higher skilled girls fared better in the coeducational environment than other girls, they indicated that they would have greater opportunities to develop their skills in a single-sex environment. Each of the teachers expressed how much better the low skill girls fared in the single-sex environment and thought that this was definitely the best learning experience for those students.

Results from post-intervention questionnaire indicated that 74% of the girls in the single-sex classes and 67% of the girls in the coeducational classes would prefer learning in a single-sex volleyball class. None of these girls had any previous learning experiences in single-sex physical education classes.

The girls' positive perceptions of single-sex volleyball classes were reflected in the findings that 80% of the girls wanted to continue with girls-only groups beyond the study. Overall, the majority of the girls seem to regard single sex volleyball classes as more conducive for them to learn in.

All teachers in the study, 100%, believed that most middle school girls would have a better learning experience in single-sex classes than in coeducational classes. They concluded that some high skilled girls would benefit from a coeducational learning environment. But that number of girls is very small.

CHAPTER V

Discussion and Conclusion

The purpose of this study is twofold: (1) to assess the effects of coeducational and sex-segregated classes on several self-efficacy variables in middle school girls' while participating in unit of volleyball; and (2) to determine the influence of these variables upon middle school girls' efficacy for learning volleyball.The variables examined in this study comprised of students' self-perception of their confidence in learning volleyball, as well as how they viewed the usefulness and gender appropriateness of volleyball. It was hypothesized that girls self-efficacy would be more positive in single-sex volleyball classes than coeducational volleyball classes. The findings in the present study reveal that all of the student variables that were measured quantitatively for determining girls' self-efficacy for learning volleyball were found to be significant, favoring girls in single-sex environments. Results from this study provided evidence that girls in single-sex volleyball classes have greater self-efficacy for learning volleyball than girls in coeducational environments. These results offer some support that self-efficacy for learning volleyball is enhanced in single-sex environments. Previous studies in mathematics education (Rowe, 1988; Sherman, 1981, 1982) and physical education (Lirgg 1993, 1994) also found that girls' self-confidence for learning was higher in girls that were in single-sex settings. Correlational analysis showed that the skill level of the student was positively correlated with class type. Girls that identified themselves as having higher skill levels preferred coeducational volleyball classes no matter what their group mix and girls that identified themselves as non-athletic or having lower skills preferred same-sex classes. The increased efficacy results found in the single-sex classes may be due to the supportive atmosphere perceived by the students, which is explained later in the discussion.

The data from the post-intervention questionnaire, student and teacher interviews show a preference for single-sex volleyball classes and physical education classes. Both teachers and students thought that there was more engaged learning time for skill development, a more supportive learning environment, and better conduct in single-sex classes than coeducational classes. The following conclusions and summary statements were drawn from the analysis of the qualitative data.

Student Perceptions

According to the U.S. Department of Health and Human Services (1996) girls are less active in physical activities than boys and their perceptions about physical activity have an impact on their decision to participate. It appears from this study that both the girls as well as the teachers saw increased participation in activity by the girls in the single-sex volleyball environments especially the non-athletic and lower skilled girls. The benefit of being more physically active was linked to their reasons for a higher sense of efficacy and increased competency. With few exceptions, the girls' reported their satisfaction with the ability to be able to develop their skills, engage in activity, and challenge themselves in an environment without the risk of failure and embarrassment that appear to be present when boys are in the class and said that they had more enjoyment learning volleyball in single-sex classes. Jaffee and Manzer (1992) state that higher levels of self-esteem and perceived physical competence are benefits that girls gain from being physically active.

Results also established that non-threatening and supportive environments also produced higher efficacy in the single-sex classes. Both teachers and students noted that the boys were not able to dominate the classes. Girls reported that they preferred learning volleyball skills without the boys being in the class, and if given the choice, believed that they would have an overall better physical education experience in single sex classes. This finding agrees with the study by Treanor, Graber, Housner, & Wiegand

(1998) and Lirgg (1993, 1994) who found that girls preferred single-gendered physical education classes. Pipher (1994) found that the psychological benefits experienced in the environment may enhance girls overall well being and empower them to challenge themselves both physically and intellectually.

The common theme across the interviews was that boys' dominance and aggressive behavior in class, lack of opportunity, and unacceptable behavior towards the girls were identified as encumbrances to their participation in activity. Additionally the interviews identified girls' concern with body image and appearance after the activity as impedances to their participation in activity when the boys were around. These results reveal factors, which the girls felt substantially lowered their opportunity to improve their skill level and ultimately lead to their lowered efficacy levels for not wanting to participate the in the class.

In the literature it has been debated that there are merits of having boys in classes with girls; some argue that coeducational schooling provides a more realistic and socially integrated environment that girls need to be able to acquire a competitive edge in society. However, the negative impact of boys on the girls' learning experience cannot be ignored. The dynamics of the physical education environment are very different from a regular classroom setting. Kunesh et al. (1992) report that due to the nature and dynamics of the physical education class, many students, girls and boys, may be put into vulnerable situations, such as peer review of one's physical appearance and athletic ability which have resulted in some girls dropping out or choosing not to participate in coeducation physical education classes. Any educational setting that minimizes or prevents positive learning experiences for all students must be examined and the merits of such a setting on the physical activity, skill, and emotional needs of the student has to be taken into account.

The information from these girls indicate that many girls are not having as positive a learning experience in coeducational physical education classes as they perceive they could receive in a single-sex physical education class. One of the ultimate goals of physical education is to equip students, both boys and girls, with the knowledge and skills to enable them to be physically active for a lifetime, therefore they should be taught in environments that will enhance their perceived efficacy levels as to what they come to believe they can accomplish. Kunesh et al (1992) state that many girls in coeducation physical education classes become competent bystanders during activity and others make decisions to opt out of the classes when given the choice to do so. In her study, Griffin (1985) observed that girls tended to be excluded in team sports when they are played in a coeducational setting. Pate (2005) says that girls have been shortchanged in typical gym classes for years.

If middle school girls are to acquire the positive efficacy levels that can result from their physical education experience and sustain positive physical activity behavior from adolescence to adulthood, then the environments in which girls learn physical activity must continually be examined to schedule them into the most favorable learning environments. Girls tend to struggle in coeducation environments oftentimes to the exclusion of the activity. Sallis et al (1992) state that if girls enjoy their physical education experiences they may be more apt to continue with physical education classes in high school, and then continue on with some form of physical activity as adults.

Teacher Perceptions

Results for the teacher interviews where somewhat similar to the qualitative analyses of the student interviews and revealed that these teachers felt there were perceived differences between the single-sex and coeducational volleyball classes. Each teacher noted that there were some high skilled girls in the classes that would benefit

from a coeducational experience but that number is very small. Each teacher believed that girls in single-sex classes excelled more than girls in coeducation classes; especially lower-skilled and non-athletic girls who tended to challenge themselves more and developed more skill competency. As stated by one teacher, “less skilled girls will shut down and not participate if the boys are in the activity.” Pate (2005) notes that some girls are self-conscious being physically active in a gender-integrated group, and there is a tendency for girls to get marginalized and drift to the sidelines rather than participate actively.

Furthermore teachers stated that single-sex environments provided girls with a non-threatening and supportive atmosphere in which to learn. This feeling of support may provide less-skilled and non-athletic girls with the opportunity to challenge themselves in learning new skills and obtaining mature motor patterns as well as acquiring the necessary knowledge and strategy for more competitive game play (Derry and Phillips, 2004). In addition, the teachers shared that the girls had more practice time and more time on task in the single-sex classes. Derry and Phillips (2004) cited that girls in single-sex groups accumulated more practice time and time on task than their peers in the coeducation environment.

Overall, the findings from the teacher interviews support single-sex volleyball classes and physical education classes. From the teachers’ perceptions, the climate of the coeducational volleyball class was not conducive to or supportive for the girls’ skill development in the class. Based upon the teachers’ observations, the single-sex classes appeared to contribute to higher skill development for the girls and less time was spent in time management. The teachers noted that management time increased when boys were in the class. The additional time allotted to activity, could help with the girls skill development, which in turn could impact the students having greater efficacy levels. Given the opportunity, girls will become more competent in environments that are more

supportive and less threatening and they can gain the skills needed to be vigorously engaged in physical activity later in life regardless of the gender mix (Derry, 1999).

Adolescence can be an extremely difficult and very trying time for young girls and should be taken very seriously (Pipher, 1994). Middle school years have been identified as the time during which the gap between girls' and boys' self-perceptions of ability emerges (Fennema and Hart, 1994). It is also a time when physical activity levels decrease in adolescent girls (Barsony, N. Bandini, L.G., Must A., and Dietz W.H., 1997) and fat accumulation accelerates (Malina, RM and Bouchard C., 1991). To meet the needs and values of middle school girls, physical education classes must provide experiences and opportunities that develop competence and confidence in physical activities. Pate (2005) points out that at this critical stage in their development, girls and boys are different enough so it makes sense to separate them.

Physical inactivity is a major public health concern in our society. Maintaining physical fitness and physical activity through puberty will have favorable health benefits in later years (Janz, Dawson and Mahoney, 2000). If physical activity levels for girls begin to decline during the middle school years it should be a concern to educators, to identify the best learning environment that supports confident and competent skill development in a wide variety of physical activities and provide girls with the opportunity to gain pleasure, satisfaction and success thus fostering a life-long interest in sport. Based upon the quantitative and qualitative data analysis from this study, it could be argued that girls should be able to choose the environment that helps them to develop self-esteem through the acquisition of physical competence and is supportive for them when learning skills in physical activity.

Although the results of one cohort of middle school girls in one school district cannot be regarded as typical of the wider population, the results of the present study

establishes that a clear difference exists between these environments and does support single-sex environments as avenues for middle school girls to learn physical activity.

Recommendations for future Research

Further research is needed to examine what adolescent females consider important for learning skills in physical education. Longitudinal studies are needed to evaluate the class context (single-sex and coeducational) and its ability to sustain positive physical activity behavior into adulthood.

Conclusion

More than a quarter century has past since the legislation of Title IX, the landmark civil rights law, which promoted coeducational physical education classes. Physical education classes are one of the arenas provided for youth to become successful in motor and skill development and game play. The assumption underlying Title IX was that once equal access was provided to the same instruction for girls as for boys, an increase in both the skill level and physical aspiration of females would follow (Vertinsky, 1992). The classroom plays a major role in determining what students learn and if one identifiable group of people is not learning as well as another group, then the educational environment can and should be modified to ensure that these group differences are eliminated (Fennema, 2000). Monagan (1983) and Sadker et al (1994) declare that one might question the decision to place adolescent girls and boys in coeducation physical education environments given the developmental differences. The study illustrates that boys and girls having equal access in physical activity, does not ensure a physical education environment that is conducive to learning for all students. Consequently, to effectively promote physically active lifestyles among middle school girls, single-sex classes may better provide for some of their educational needs. Lirrg (1994) state that girls appear to view single-sex classes more favorably than they view coeducation classes.

Clearly, these findings propose that single-sex environments seem to be more beneficial for boosting the efficacy levels of middle school girls in volleyball classes than coeducation environments and could provide a better learning experience for them. The American Public Health Association (2005) suggest that increasing girls' self-efficacy and enjoyment of the PE class could enhance their participation in structured physical activity programs. The results of a physical activity intervention study showed that a clear difference existed between single-sex environments and coeducational environments for boosting the self-efficacy of female middle school students (Dishman et al, 2004). They encourage the use of self-efficacy as a variable to increase physical activity among adolescent girls.

Since a great majority of middle school girls in this study and in this county are enrolled in coeducational physical education programs, school administrators and teachers should ensure that efforts are taken to design the most appropriate learning environment for all students and to determine its impact on student learning both physically and psychologically. According to Jaffee et al. (1992) self-efficacy is a quality that may empower girls to continue with physical activity and to enhance their overall quality of life instead of decreasing their physical activity levels as they get older. Further research is needed to better understand coeducational and single-sex environments and its impact on students' efficacy levels for learning activity in physical education. Only the accumulation of a body of data on this type of research can provide useful empirical data to inform curriculum designers and teachers in developing strategies that will reach out to all students and enhance their learning and improve teaching practices that will influence the quality of students' engagement in physical activity. Undoubtedly, future studies will raise new questions and new concerns for classroom environment.

Perceived self-efficacy is a determinate necessary for people to engage in and continue with a task according to Bandura (1986). A high level of perceived physical competence is an important determinant for continued engagement in physical activity that is clearly supported by the literature (Jaffee & Manzer, 1992; Jaffee & Wu, 1996). The results of this study shed light upon the impact of coeducational and single-sex environments on student's efficacy in a physical education volleyball unit. It is clear that the middle school girls in sex-separate volleyball classes appeared to enjoy their physical education classes more and had higher levels of perceived efficacy for playing volleyball than female students in coeducational volleyball classes. As the present study demonstrates, there are significant differences between coeducational and single-sex environments for learning volleyball skills.

The results of this study, when added to the information provided in the literature, lend support that single-sex volleyball classes provide middle school girls with some determinates that promote and develop higher levels of perceived self-efficacy that contribute to continued participation in physical activity. Sallis et. al (1996) says that girls who enjoy their physical education experiences may be more apt to continue with physical education classes throughout high school, and continue on with some form of physical activity as adults. Derry et al (2004) state that perceived competence may become a more important factor for determining the level of physical activity participation for girls when they are no longer involved in structured physical education classes.

Given that girls might be scheduled into environments that are not optimal for their learning, it might be a fair solution to allow middle school girls' the option of choosing the class type in which they prefer to learn. In environments that are conducive for their learning, girls if given the opportunity to develop skills could possibly be more likely to develop a genuine interest in all physical education activities and are likely to choose to participate in physical activity for a lifetime.

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APPENDIX A

Self-confidence for Learning Physical Activity, Usefulness of Physical Activity, and Gender-appropriateness of Physical Activity.

Code Number _____
(Students Initials and Date of Birth)

Section 1: Demographics (Circle One)

A. What is your age?	11	12	13	14	15	16
B. What grade are you in?	6	7	8	9		

Section 2:

Please **circle** the number that matches how you feel right now about each question.

(CODE: C = Confidence Scare, U = Usefulness Scale,
G = Gender-appropriateness Scale

1	**2**	**3**	**4**	**5**
Strongly Disagree	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**

C 1. Generally, I feel confident about attempting volleyball in physical education.

1	2	3	4	5
SD	D	NS	A	SA

U 2. It's good to know how to play volleyball so that I can play then in my free time.

1	2	3	4	5
SD	D	NS	A	SA

G 3. I would have more faith in letting a boy make an important play in a volleyball game than a girl.

1	2	3	4	5
SD	D	NS	A	SA

C 4. I'm no good in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 5. Volleyball is not important for me to use in my free time.

1	2	3	4	5
SD	D	NS	A	SA

G 6. Learning volleyball in P.E. is just as appropriate for girls as it is for boys.

1	2	3	4	5
SD	D	NS	A	SA

C 7. I have a lot of self-confidence when it comes to volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 8. I will probably participate in volleyball many times as I grow up.

1	2	3	4	5
SD	D	NS	A	SA

G 9. Girls are certainly coordinated enough to do well in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

C 10. I don't think I could do harder skills in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 11. I see volleyball as an activity I will rarely participate during my free time as I get older.

1	2	3	4	5
SD	D	NS	A	SA

G 12. When a girl engages in games during volleyball, it is feminine to let the boy win.

1	2	3	4	5
SD	D	NS	A	SA

C 13. I am sure that I can learn skills for volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 14. I learn volleyball now because I know how useful it will be later in life.

1	2	3	4	5
SD	D	NS	A	SA

G 15. I would trust a girl just as much as I would trust a boy to make an important play in a game during volleyball.

1	2	3	4	5
SD	D	NS	A	SA

C 16. I'm not the type of person to do well in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 17. Learning volleyball is a waste of time.

1	2	3	4	5
SD	D	NS	A	SA

G 18. It's hard to believe that a girl could be great in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

C 19. I think I could handle more difficult skills in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 20. Knowing volleyball will help me enjoy my free time.

1	2	3	4	5
SD	D	NS	A	SA

G 21. Volleyball is for boys; cheerleading is for girls.

1	2	3	4	5
SD	D	NS	A	SA

C 22. For some reason, even though I try, volleyball seems really hard for me.

1	2	3	4	5
SD	D	NS	A	SA

U 23. When thinking about my adult life, it is not important for me to learn skills in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

G 24. Girls can do just as well as boys in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

C 25. I can do well in volleyball skill tests.

1	2	3	4	5
SD	D	NS	A	SA

U 26. Volleyball is a worthwhile subject area to learn

1	2	3	4	5
SD	D	NS	A	SA

G 27. I would expect a girl participant in volleyball to be a masculine type of person.

1	2	3	4	5
SD	D	NS	A	SA

C 28. Some activities I can handle O.K., but I usually mess up in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

U 29. I expect to make little use of volleyball when I get out of school.

1	2	3	4	5
SD	D	NS	A	SA

G 30. Boys are not actually better than girls in volleyball.

1	2	3	4	5
SD	D	NS	A	SA

Section 2: Self – Perception Items

(4 = Strongly agree, 3 = Agree, 2 = Disagree, 1 = Strongly disagree)

____ 1. I like physical education.
____ 2. I try hard in physical education.
____ 3. I follow rules and behave well in physical education.
____ 4. I have good sport skills in physical education.

APPENDIX B

Post-Intervention Questionnaire

If you had to pick between a physical education class for a year that was boys and girls mixed or that had only boys or only girls, which one would you pick? (Circle one):

Mixed Boys/Girls

Should volleyball be taught in a mixed class or separated for boys and girls?
_____

What sports do you feel could be taught to both boys and girls together? Please list:

Are there any sports that you feel should definitely be separated by boys and girls? Please list:

What are some good things about having both boys and girls in the same gym class?

What are some bad things about having both boys and girls in the same gym class?

Compare your volleyball ability to other students in your class. Are you: (Circle one answer)

Better Worse About the same

APPENDIX C

Parent Letter and Parent Consent Form

VOLLEYBALL STUDY

Dear Parent:

As part of the requirements for my doctoral degree in physical education, I will be investigating students' perceptions of their physical education classes during a unit of volleyball. Specifically, I am interested in examining factors that may affect their motivations to learn physical skills.

Your child is being asked to participate in this study. We are requesting your permission of your child's participation.

Your child is being asked to fill out questionnaires about volleyball class before and after a volleyball unit taught by their school's physical education teacher. Only the experimenter will have access to the answers provided by the students. Your child's physical education instructor will NOT be involved in any way with the data collected.

Enclosed is a parental consent form that we would like you to complete. This form provides a summary of your child's rights as a participant in the study. Please read the form carefully and keep in mind that your child will also be informed of his/her rights as a participant in the study. Your child's performance will be kept strictly confidential. There is no penalty if at any time you decide not to permit your child to participate in the study or if your child decides not to continue participation in the study. If you approve of this study's objectives, permitting your child to participate will help us in our efforts tremendously. Please sign the form and send it to school with your child. If you have any further questions, please feel free to contact us.

We are grateful for your help.

Thank you,

Sharon E. Whitlock
Experimenter
270-782-1310

Richard Stratton
Committee Chair
540-231-6000

Consent Letter

I._____, understand that my parents have given permission for me to participate in a study concerning Middle School Girls, under the direction of Sharon Whitlock.

My participation in this project is voluntary, and I have been told that I may stop my participation in this study at any time. If I choose not to participate, it will not affect my grade in any way.

Signature_____ Date_____

APPENDIX D

Lesson Plans

Special Instructions for each Lesson: Put a checkmark by all activities that you cover in the lesson. Please note on the lesson if you did a different task in the lesson. If you decide to deviate from the scheduled lessons for any reason, it is very important that both coed and single-sex classes be taught the same lessons. By all means, please try to follow the scheduled lesson, even if something doesn't seem to work.

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Forearm Pass
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Demonstrate the forearm pass from a playable toss (freeball)

Time	ACTIVITY	DRILL/GAME	EXTENSION	FORMATION	KEY POINTS
3 min	Instant Activity	Partner Bump. Students pair up with one ball between them. One partner tosses the ball underhand to partner and they pass it back. Switch after 10 passes	Toss at different speeds and different heights to make the passer move	An area in general space with a partner	a))Athletic Stance a) Flat platform c)hands cupped together; forearms close together and flat. d)As ball hits arms bump it back into the air using legs e) Absorb/ extend **Absorb**-give with arms if ball is moving fast. **Extend** with arms if ball is moving slow
10 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with a playable toss to partner. Students can only use the forearm pass. The 3rd pass must go across the net.		Groups of four on each side of the net.	
10 min.	Practice.	Passer, Setter, Tosser Drill. Tosser tosses underhand directly to the passer, the passer passes to the setter, and	Toss at different levels and directions to the passer – high, low, to the side. Toss at different	Groups of three scattered in general space. One ball per group. Each group has a	

		the setter catches the ball and tosses it back to the tosser. Rotate after 3 tries.	speeds to the passer.	setter, tosser, and passer. The tosser tosses to the passer, the forearm passes to the setter. The setter catches the ball and gives it to the tosser. Three tries and switch rolls. Tosser is passer, passer is setter and setter is the tosser.	
10 min	Practice	Slide Step Passing. The tosser tosses a ball to the passer and the passer passes it back to the tosser. Then the passer slide steps in front of the other tosser. The second tosser repeats and the passer slides back in front of the first.	Tossers toss diagonally, and passer passes forward. Tossers toss diagonally, and passer passes diagonally	Two tossers with a ball each and one passer. *See diagram	
10 min	Game Play	4v4 Game	Same as above		
	Rules	Illegal Hits			

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Setting/Overhand Pass
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Demonstrate a set pass from a playable toss.

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Keep it Up	Students form small groups (3 or 4) and spread out in general space. Same activity from previous lesson. Use bump or forearm.	An area in general space with the group	a)Athletic Stance b) Flat platform c)hands cupped together; forearms close together and flat. d)As ball hits arms bump it back into the air using legs e) Absorb/ extend **Absorb**-give with arms if ball is moving fast. **Extend** with arms if ball is moving slow
10 min.	Game play	4v4 Game. A total of 3 hits per side. The game starts with a playable toss to partner. Students can only use the set pass. The 3rd pass must go across the net. Students can use set or forearm pass		Groups of four on each side of the net.	a)Ready position facing target b)Spread fingers in the shape of ball above the head. c) Form triangle with thumbs and pointerfingers d)Place hands close to the forehead e)On contact, extend arms and legs.

10 min.	Practice. Wall Set.	Students toss ball up to self and use the set pass to bump the ball against the wall at a high level. As the ball comes off the wall, the student catches it at a high level.		Each student has a ball spread along the gym wall. Standing 3-5 feet from the wall.	
10 min	Practice. Pass-Off Toss Drill	One player assumes a ready position (receiver), while the tosser tosses a ball. The receiver returns the ball within one step of the tosser. Five times and alternate positions	Increase the speed of the ball. Increase the distance between the partners	One ball, two players scattered in self-space. (Stand 5-6 feet apart)	
10 min	Game Play.	4v4 Game	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Setting to a Target
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Demonstrate an accurate and controlled forearm pass to a teammate from a playable toss (freeball)

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Wall Bump. Students toss ball up to self and use the forearm pass to bump the ball against the wall at a high level. As the ball comes off the wall, the student catches it at a high level.	Increase distance from the wall.	Each student has a ball spread along the gym wall.	a))Athletic Stance a) Flat platform c)hands cupped together; forearms close together and flat. d)As ball hits arms bump it back into the air using legs e) Absorb/ extend **Absorb**-give with arms if ball is moving fast. **Extend** with arms if ball is moving slow
10 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with a playable toss to partner. Students can only use the forearm and set pass. The 3rd pass must go across the net. Students can use set or forearm pass. There must be at least two sets before the ball goes to the other side.		Groups of four on each side of the net.	
10 min.	Practice. Volley	First student bumps the ball against the wall		Students pair up and find an open	

		and then moves behind his partner. They continue until someone messes up. The one not messing up gets a V. Play continues until someone spells volleyball. Keep the ball high on the wall		spot along the wall.	
10 min	Practice. Set to target with tosser	Tosser on one side of net and the setter and target on the other. The tosser, tosses the ball over the net to the setter. The setter sets it to the target person who is near the center of the net. Three tosses and change positions. Move in clockwise position. Keep the ball high		Groups of three at the net. Two people on one side and one person on the other.	a)Ready position facing target b)Spread fingers in the shape of ball above the head. c) Form triangle with thumbs and pointerfingers d)Place hands close to the forehead e)On contact, extend arms and legs.
10 min	Game Play	4v4 Game	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Forearm Pass to Setter
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Students will be able to make an accurate forearm pass to the setter.

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	With a partner bump and set the ball back and forth between you.		Spot in general space	
10 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with a playable toss to partner. Students can only use the forearm and set pass. The 3rd pass must go across the net. There must be a pass-set combination to earn a point.		Groups of four on each side of the net.	See Cues for learning from previous lesson
10 min.	Practice	Tosser tosses the ball underhand and overhand to passer. Passer passes to the setter	Use different speeds, high levels,	Groups of three in general space	Have feet to the ball (feet pointed in the direction the ball is coming
10 min	Game Play	4v4 Game	Same as above		
10 min					

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Underhand Serve
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: The students will be able to serve the ball across the net

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Keep it Up.	On signal of teacher change the types of hit.	Groups 4-5.	
10 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with a free ball. Rotate after every free ball. Students can only use the forearm and set pass. Up to three hits per side, two hits win a point.		Groups of four on each side of the net.	
10 min.	Practice	Underhand serve and catch. One partner serves the ball across the ball to the partner who catches it and serves it back	Increase the distance	Partners on either side of the net.	Stand facing the net with the foot opposite the hitting hand forward. Ball held at waist height. Lean forward as swing arm foreward and contact the ball. Hit ball underneath with heel of hand. Follow through in direction of the target. High ball toss
10 min	Practice	Underhand Serve to Target. Each partner on either side of the court and serve to the other court aiming for a hula hoop	Hoops placed short, deep down line, and across court	Partners on either side of the net	
10 min	Game Play	4v4 Game	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Forearm Pass off the Serve
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX
Objective: Students will be able to pass the ball from an underhand serve

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Underhand serve to the Wall. Students underhand serve the ball to the wall.	Serve from different distances	Each student with a ball spread along the wall	
10 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with an underhand serve. Students can only use forearm and set pass. The 3rd pass must go across the net. Students can use set or forearm pass. There must be a pass-set combination to earn a point.		Groups of four on each side of the net.	
15 min.	Practice	Server, passer, setter. One student underhand serves the ball to the passer. The passer passes the ball to the setter. The setter catches the ball. Three tries and students rotate clockwise	Increase the distance until students are serving from the legal serving area	Groups of three. Two people on one side and the server on the other side of the net	Stand facing the net with the foot opposite the hitting hand forward. Ball held at waist height. Lean forward as swing arm foreward and contact the ball. Hit ball underneath with heel of hand. Follow through in direction of the target. High ball
15 min	Game Play	4v4 Game	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Overhand Serve
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Students will be able to serve the ball overhand over the net

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Server, passer, setter. One student overhand serves the ball to the passer. The passer passes the ball to the setter. Setter catches the ball. Three tries and students rotate clockwise		Groups of three. Two people on one side of the net. Server on the opposite side of the net	
15 min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with an underhand serve. Students can only use forearm and set pass. The 3rd pass must go across the net. Students can use set or forearm pass. There must be a pass-set combination to earn a point		Groups of four on each side of the net.	
10 min.	Practice	Overhand serve and catch. One partner serves the ball across the net to the partner who catches it and serves it back	Increase the distance until serving from the legal serving line.	Partners on either side of the net.	With firm wrist, toss the ball 18 inches – so the ball falls to the spot just inside of the lead foot and in line with the hitting shoulder. Hand up and back before the toss. Elbow and hand are at shoulder height or above

					throughout the entire serving motion (Shift)Shift weight to lead foot, or step forward, as you make contact with the ball Wrist firm throughout serve. Contact with heel of hand through middle back of ball. Hand follows ball to the target.
15 min	Game Play	4v4 Game	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Forearm Pass from the Overhand Serve
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Demonstrate the forearm pass from an overhand serve.

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Overhand serve to the Wall. Students underhand serve the ball to the wall.	Serve from different distances	Each student with a ball spread along the wall	
15min.	Game Play	4v4 Game. A total of 3 hits per side. The game starts with an underhand serve. Students can only use forearm and set pass. The 3rd pass must go across the net. Students can use set or forearm pass. There must be a pass-set combination to earn a point.		Groups of four on each side of the net.	
10 min.	Practice	Server, passer, setter. One student serves the ball to the passer. The passer passes the ball to the setter. The setter catches the ball. Three tries and students rotate clockwise	Increase the distance until students are serving from the legal serving area	Groups of three. Two people on one side and the server on the other side of the net	
15 min		4v4 Game Game Play	Same as above		

LESSON: Day 1 2 3 4 5 6 7 8 9 10 FOCUS: Round Robin Tournaments
Date_____ Instructor_____
School_____ Class: COED SINGLE-SEX

Objective: Tournament Play. Round Robin Tournament

Time	Activity	Drill/Game	Extension	Formation	Key Points
3 min	Instant Activity	Keep it Up.		Groups of 4-5	
40 min	Game Play	4v4 Game. A total of 3 hits per side. The game starts with an underhand serve. Students can only use forearm and set pass. The 3rd pass must go across the net. Rally scoring. Students will play by the rules of volleyball.		Groups of four on each side of the net.	Each game will be 12 minutes long. The team ahead at the end of the time limit wins the game.
	Round 1 1 v 2 court 1 3 v 4 court 2 5 v 6 court 3 Round 2 1 v 3 court 3 5 v 2 court 1 6 v 4 court 2 Round 3 1 v 5 court 2 6 v 3 court 3 4 v 2 court 1 Round 4 1 v 6 court 1 4 v 5 court 2 2 v 3 court 3				

	Round 5 1 v 4 court 3 2 v 6 court 2 3 v 5 court 1				

APPENDIX E

Interview Questions
Students

How did you enjoy your P.E. class today?

What did you like about today's class? What did you dislike?

If you could make changes in your P.E. class what would it be?

How do you like participating with girls only in the class?

What do you like about not having boys in the class?

What do you like about boys being in the same class with you?

When do you think you are better at playing volleyball, with girls only or with boys in class? Why are you better?

Why do the girls practice by themselves and not with the boys when you work of your skills?

Would you take P.E. if it was not required?

What comments would you like to make about class today?

APPENDIX F

Teacher Interviews

Did you observe any differences between the participation levels of the girls in the single-sex and coeducational classes? If yes, what differences did you observe?

Did you notice any differences between the girls skill levels in the single-sex and coeducational classes? What were they?

Do you think girls volleyball skills were better in single-sex or coeducational class? Why?

Which type of class do you think is better for girls at this age to learn content in physical education, single-sex or coeducational? Why?

What are some observations that you notice about boys behavior when they play volleyball with the girls?

How would you compare girls behavior without having the boys in the class to having them in the class?

Are there any comments that you would like to make about this experience?

Vita

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Education

Virginia Polytechnic Institute and State University (July 31, 2006)
Major: Department of Curriculum and Instruction
Degree: Ed.D.

Kent State University, Kent, Ohio (1980)
Major: Athletic Administration
Degree: Master of Arts

Norfolk State University, Norfolk, Va. (1973)
Major: Health and Physical Education
Degree: Bachelor of Science

Professional Employment

Current: Instructor – Western Kentucky University

Previous: Claims Analyst – Blue Cross Blue Shield, Jacksonville, FL, 1985-1991.

Instructor – Edward Waters College, Jacksonville, FL, 1980-1985

Coordinator for Women Sports, Edward Waters College, Jacksonville, FL, 1980-1985

Teacher – Secondary Physical Education – Grades 9-10, 1974-1977.

Professional Affiliations

American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD); Kentucky Association for Health, Physical Education, Recreation and Dance (KAHPERD); Kentucky Association of Blacks in Higher Education (KABHE); United Community for Christ.

Professional Assignments and Activities

Current: Secondary Physical Education Chair, Kentucky Association for Health, Physical Education, Recreation and Dance; Board Member, Code Enforcement Board for the City of Bowling Green; Advisor, Fitness/Wellness Council for Warren County/Bowling Green; Vice-President, United Community for Christ; Member National Association for the Advancement of Colored People (NAACP).

Former: Advisor, Public School Partnership Program, Greenwood High School, Advisor, Department of Health Pregnancy Council, Bowling Green, KY; Member, Task Force for NCAA Title IX Compliance, Western Kentucky University; Member, University Senate, Western Kentucky University; Dean's Circle, Western Kentucky University; Secretary, African American Ministerial Alliance.

Presentations/Workshops/Conferences

Application of Sport Education for Secondary School Teachers, KAHPERD 2005, *Building Sport Education into the Curriculum*, KAHPERD, 2004; *Tango, Western Kentucky University Alumni, 2002; Teambuilding Skills for Middle School Students*, GRECC, 1998; *Authentic Assessment for Secondary Teachers*, GRECC, 1997; *Teacher Collaboration*, AAHPERD National Convention, 1998, Reno NV; *Women in Religion*, Western Kentucky University,1997; *Black Females in Sports*, Western Kentucky University, 1996; *What Students Can Learn in P.E. in 72 Hours*, Share The Wealth Conference, 1995; *African Dance for Middle School Children*, Share The Wealth Conference, 1995; *Fine Motor Skills for Special Populations*, AAHPERD National Conference, 1992.

Honors and Awards

Coach of the Year, SEAC Conference, 1984; Nominee for Woman of the Year, Human Rights Commission, 1997