

2013

## Physical self-concept and gender : the role of frame of reference and social comparison among adolescent females

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PHYSICAL SELF-CONCEPT AND GENDER:  
THE ROLE OF FRAME OF REFERENCE  
AND  
SOCIAL COMPARISON  
AMONG ADOLESCENT FEMALES

A Dissertation

Submitted to the Graduate Faculty of the  
Louisiana State University  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

in  
The School of Kinesiology

by  
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August 2013

## **ACKNOWLEDGEMENTS**

Throughout the years, there have been several people who have had a significant impact on my education and career. Without them, this project would not have been possible. I would first like to thank all of the students, teachers, and volunteers who were willing to lend a helping hand throughout the data collection process. A special thanks to the members of my dissertation committee: Dr. Alex Garn, who has spent countless hours revising and editing my work, Dr. Melinda Solmon, a wonderful mentor and boss whom I admire, Dr. Birgitta Baker, who was always willing to sneak away for coffee breaks and writing inspiration, and Dr. Laura Choate and Dr. Catherine Champagne, who provided valuable insight and feedback. I am very fortunate to have had the opportunity to work with such an outstanding group of professors and their advice and guidance was invaluable.

There are two friends who I appreciate deeply, Dr. Laura Helen Marks and Dr. Jasmine Hamilton. The two of you were there when I was in need of inspiration, motivation, or a good laugh. I am extremely lucky to have a best friend and colleague in Dr. Ashley Samson, who has been my partner in crime for the past four years, even when she was on the opposite side of the country. You continue to remind me that I am powerful beyond measure. Also, to the extensive list of friends who would never let me forget the importance of simply having a good time: Dr. Steven McCullar, Molly Fisher, K-Lynn McKey, Bryce Dudley, Zach Montgomery, and Dr. Lisa Johnson. Whether it was for a nice tailgate, a good run, afternoon refreshments, or an inspirational quote, I knew one of you would be ready to accept the challenge.

I would like to extend a special thanks to my dear companions at Right Lead Equestrian Center, most of all Frank, who was always there when I needed an escape. To Alex, who has

been a constant companion throughout my entire education and a furry shoulder to cry on when I needed it. He's hung around just to see me through.

I would also like to acknowledge the significant contribution my family has made to my education. To Mom, you have always pushed me to excel in whatever it was I chose to do and encouraged me to reach my full potential. To my Nanny, who has always been a positive light and made me believe that I was one of a kind and the best in everything (regardless if that were actually the case). To my brother Jace, who is a daily reminder of everything that is connected and beautiful.

To my Daddy, who has made more sacrifices for me than I can even begin to count. Without you, I would not be the woman I am today. You have taught me the value of hard work, determination, and ingenuity. Not to mention how to ride a horse.

To Amon Craig, you have more patience than anyone I have ever known. Your unlimited encouragement, love, and support have kept me going when I was ready to give up. The last three years have been an incredible journey and I look forward to our future together.

Finally, I would like to acknowledge Mrs. Jackie Harrington. I can't think of another person who has had a more profound impact on my perspective on life. Because of you I know that pain is a good thing- it reminds us that we are still alive. You have shown me what it means to give to others (and mean it), and I will never forget the role you played in the beginning of my college career. Those late nights and weekends spent practicing in the gym are where it all began, although I didn't see it at the time. You are the reason that I am a teacher and I can only hope that one day I will be able to follow your example and pay it forward.

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## **ABSTRACT**

Quality physical education can positively influence students' emotional development, specifically their perceptions of competence, self-esteem, and self-concept. Unfortunately, girls often become less engaged and involved in physical education as they grow older and consistently report lower physical self-concepts than males. Physical self-concept is associated with multiple positive outcomes, yet there is only speculation addressing why females report lower physical self-concepts than males in physical education. The overall purpose of this dissertation was to investigate potential explanations for gender discrepancies in physical self-concept among physical education students. One qualitative and one quantitative research study was conducted to address this issue.

The purposes of the qualitative study were to capture female students' personal interpretations of physical self-concept, frame of reference, and the physical education environment. Results indicate that the girls enrolled in same-sex physical education classes perceived the coed environment negatively and experienced pressure regarding physical ability and appearance. Competition in physical education received significant attention and was desirable only in appropriate levels and contexts. Results supported that the students used multiple sources of information in physical self-concept development. Participants conformed to traditional gender norms and viewed males as more aggressive and physically dominant than females. In addition, all participants perceived same-sex physical education as a more desirable setting.

The purposes of the quantitative study were to investigate a BFLPE and moderating effects of class type among female students in physical education. It was hypothesized that: a)

individual ability would positively predict sport self-concept and class-level ability; b) class-level ability would negatively predict sport self-concept (also known as a BFLPE); and c) class structure (e.g. same sex, coeducational) would moderate the BFLPE in physical education. Results provided evidence that participants in both class types experienced a BFLPE. Class type did not increase or decrease the BFLPE for these students, indicating that the girls in these coed classes were not at an increased risk for experiencing negative consequences to their sport self-concept as a result of a BFLPE.

Overall, results provide additional information of physical self-concept development among adolescent females in physical education. Implications for practitioners and suggestions for future research are included.

## **CHAPTER ONE: INTRODUCTION**

Dramatic declines in physical activity levels and participation in physical education have contributed to an increase in overweight and obesity for children and adolescents (Cumming et al., 2011; United States Department of Health and Human Services [USDHHS], 2011). Regular physical activity engagement in exercise settings such as physical education can benefit students not only physically, but cognitively, emotionally, and socially as well (Bailey, 2009; USDHHS, 2011). Despite the benefits of physical activity, there is still a pressing need to motivate students to participate in physical education classes. Unfortunately, students' enjoyment and positive attitudes toward physical education decline during the transition from childhood to adolescence (Subramaniam & Silverman, 2007). Physical self-concept, an individual's perception of himself or herself within the physical domain (Marsh, 1990), is an intrinsic factor that can help explain student engagement in physical activity both in and out of physical education (Beasley & Garn, in press; Carlson, 1995; Welk & Joens-Matre, 2007). Positive physical self-concept is related to physical activity participation and both adoption and adherence (Crocker et al., 2003; Cumming et al., 2011; Dunton, Jamner, & Cooper, 2003; Marsh, Papaioannou, & Theodorakis, 2006) and a multitude of other important outcomes such as increased happiness, intrinsic motivation, and physical performance and decreased depression and anxiety (Craven & Marsh, 2008; Crocker, Sabiston, Kowalski, McDonough, & Kowlaski, 2006; Schneider, Dunton, & Cooper, 2008).

Physical self-concept research has consistently identified gender differences across multiple physical activity settings, including physical education, with females reporting lower physical self-concept than males (Caglar, 2009; Hagger, Biddle, & Wang, 2005; Hagger et al., 2010; Schmalz & Davison, 2006). In addition, as girls develop and mature, they tend to become less physically active and report lower physical self-concepts than younger girls (Cumming et



al., 2012). There has been considerable speculation as to why girls report lower physical self-concepts than males in physical education, and many have suggested that discrepancies in physical self-concept scores are a result of traditional gender stereotypes in Western society (Caglar, 2009; Crocker et al., 2003; Klomsten, Marsh, & Skaalvik, 2005; Schmalz & Davison, 2006). This is a likely explanation considering that schools are complex social environments where gender stereotypes are reinforced and traditionally masculine subjects such as physical education magnify the differences between males and females (Bain, 2009; Connell, 2008; Kirk, 2003; Penney & Evans, 2002). However, simply accrediting gender differences in physical self-concept to gender stereotypes in physical education is likely a naive, inadequate explanation. The complete understanding of this phenomenon is far more complex and there is a need for deeper investigation of females' physical self-concept construction within the gendered environment of physical education. It is likely that female students' social comparisons of ability and frame of reference within the physical education setting play a role in their physical self-concept development (Craven & Marsh, 2008; Marsh & Craven, 2002; Marsh et al., 2008b). The gendered environment of physical education provides a complex setting to examine physical self-concept construction and Marsh's (1990) theoretical framework offers a developmental and multidimensional perspective to explore the physical self-concept development of adolescent females in physical education.

### **Overview of Self-Concept and Physical Self-Concept**

Self-concept is an individual's self-perception that is formed through his or her interactions with and interpretations of the surrounding environment (Marsh, 1990; Marsh & Shalveson, 1985). It can be differentiated from other constructs, has a multifaceted and hierarchical structure, and undergoes developmental changes (Marsh, 1990; Marsh & Shalveson,

1985). In Marsh's (1990) model, self-esteem (global self-concept) is divided into academic and nonacademic self-concepts. In the nonacademic domain, self-concept is further separated into social, emotional, and physical self-concept sub-domains (See Figure 1.1). Consequently, each sub-domain is considered to also have a multidimensional structure (Marsh, 1990; Marsh & Craven, 2006; Marsh & Shalveson, 1985).

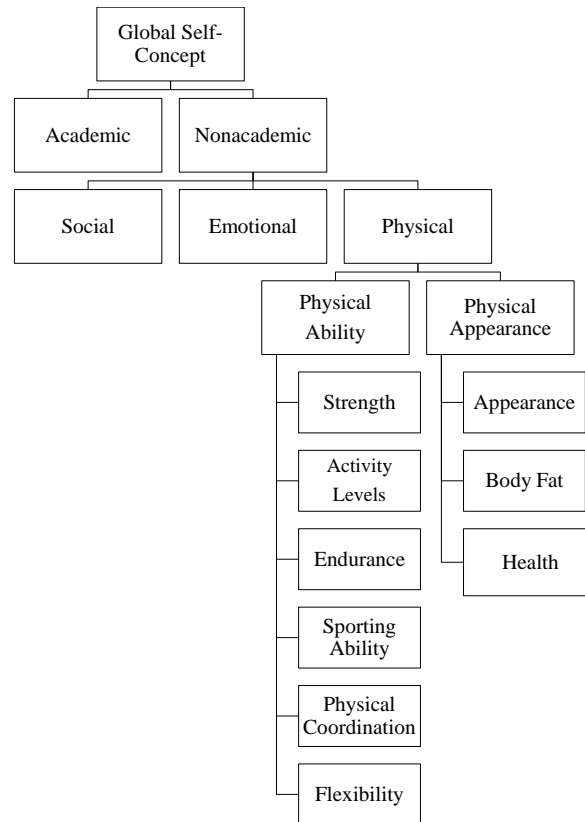


Figure 1.1. The Hierarchal Structure of Self-Concept and Physical Self-Concept.

Currently, there is substantial support for the multifaceted nature of self-concept and although global self-concept is not insignificant, it is no longer considered a useful tool for understanding the distinct dimensions of self-concept (Craven & Marsh, 2008; Marsh & Craven, 2006; Marsh & O'Mara, 2008; Marsh, Trautwein, Ludtke, Koller, & Baumert, 2006). Therefore, it is strongly suggested that researchers focus on the dimensions of self-concept most pertinent to their field (Marsh, 1990, 2006; Marsh & O'Mara, 2008; Marsh & Craven, 2006). For researchers

in physical education, physical self-concept is the sub-domain most applicable to understanding this construct within the complex physical and social environment of physical education (Craven & Marsh, 2008; Marsh, 1990; Marsh & O'Mara, 2008).

Physical self-concept refers to an individual's perception of himself or herself within the physical domain and is separated into two specific categories: physical ability and physical appearance (Marsh, 1990, 1996, 1999, 2002; Marsh & Craven, 2006; Marsh & Shalveson, 1985; Peart, Marsh, & Richards, 2005). In physical education, physical self-concept maintains the multidimensional structure that has been recognized in other physical settings (Dunton et al., 2006; Gheris, Kress, & Swalm, 2010; Marsh, Hau, Sung, & Yu, 2007). Specifically, Marsh and colleagues suggest that an individual's perception of his or her physical strength, body fat, physical activity levels, endurance, sporting ability, physical coordination, physical health, physical appearance, and physical flexibility all contribute to his or her overall physical self-concept (See Figure 1.1) (Marsh, Richards, Johnson, Roche, & Treymayne, 1994). There is strong support that as children age, physical self-concept becomes more differentiated and multidimensional (Marsh 1993; Marsh, Debus, & Bornholt, 2005; Marsh et al., 2007); indicating that physical self-concept is also best studied from a developmental perspective (Marsh, 1993, 2002, 2006, Marsh, et al., 2007).

An individual's frame of reference plays an important role in the development of global and physical self-concept (Marsh & Craven, 2002) and there is support for frame of reference effects for physical self-concept in physical education (Gheris et al., 2010; Trautwein, Gerlach, & Ludtke, 2008). The Internal/External Frame-of-Reference (I/E) Model provides a framework for understanding the development of self-concept in relation to internal and external comparisons (Craven & Marsh, 2006; Marsh, 1990; Marsh & Craven, 2002). For instance,

internal comparisons of ability within each domain can impact self-concept in other domains. A student may have average math ability and above average physical ability and he or she will in turn use this internal comparison of ability in two separate domains to construct self-concepts in each area (Marsh & Craven, 2002; Marsh, Hey, Roche, & Perry; 1997). Students may also compare current performances on a specific task with their own previous performances within the physical domain (Gheris et al., 2010). As a result, the construction of a positive physical self-concept is part of an internal self-evaluation process. In addition to these internal evaluations, external comparisons, like social comparisons of ability, influence the development of physical self-concept. As children grow older, external comparison increasingly plays a larger role in self-concept development (Marsh, 2006; Marsh, Trautwein, Ludtke, & Koller, 2008) and the context of physical education provides a complex environment to negotiate physical self-concept construction. For instance, physical education classrooms often have children exhibiting skills in a social setting and these public displays of ability provide an optimal scenario for students to engage in external social comparisons of ability (Gheris et al., 2010; Trautwein et al., 2008).

In order to provide further explanation of social comparison effects on self-concept development, Marsh and colleagues created the Big-Fish-Little-Pond Effect (BFLPE) framework (Marsh et al., 2008b; Marsh & Craven, 2002; Marsh, Seaton, Trautwein, Ludtke, Hau, O'Mara, & Craven, 2008). The basic premise of the BFLPE is that students with high ability will have a lower self-concept when surrounded by others with high average ability. Conversely, students with average ability will have a higher self-concept when surrounded by others with low average ability (Chanal, Marsh, Sarrazin, & Bois, 2005; Marsh, Seaton, et al., 2008). There is currently limited support for the BFLPE for physical self-concept in physical education (Chanal et al., 2005; Trautwein et al., 2008) and while preliminary evidence for the I/E Frame-of-Reference

Model and the BFLPE in physical education does exist, it is sparse and conclusions from this research are limited.

Adolescent females in physical education tend to report lower physical self-concepts than males, which is frequently attributed to gender stereotypes. However, a multidimensional and developmental perspective of physical self-concept construction can provide insight into how physical self-concept may be affected in the physical education environment. Physical education is an ideal setting for internal comparisons of performance as well as social comparisons of ability. Therefore, there is a substantial need for deeper investigation of how adolescent girls' frame of reference and the social environment of physical education influence the development of a positive physical self-concept.

The purpose of this dissertation is to explore how adolescent females in physical education perceive the physical education environment, their personal interpretations of physical self-concept, and the role of social comparison in their physical self-concept development. Chapter 2 examines how female students in physical education perceive internal and external frames of reference and captures their personal interpretations of physical self-concept, frame of reference, and the physical education environment. This study employed a phenomenological framework that included extensive field observations and in-depth participant interviews with female students enrolled in same-sex physical education classes. Chapter 3 used survey and physical ability data to investigate a possible BFLPE for sport self-concept in a sample of adolescent females enrolled in same-sex and coeducational physical education classes.

## **CHAPTER TWO: PHYSICAL SELF-CONCEPT AND FRAME OF REFERENCE FOR GIRLS IN SAME-SEX PHYSICAL EDUCATION**

### **Introduction**

Past research has suggested that physical self-concept, an individual's perception of himself or herself within the physical domain (Marsh, 1990, 2002), is a primary determinant of adolescent girls' global self-concept (Beasley & Garn, in review; O'Dea & Abraham, 1999). A positive physical self-concept is associated with physical activity participation, skill development, and motor learning in physical education (Guerin, Marsh, & Famose, 2004; Peart, Marsh, & Richards, 2005) and physical education can aid in the development of positive physical and global self-concept among young girls (Craven & Marsh, 2008; Daley & Buchanan, 1999; Jones, Polman, & Peters, 2009). Physical self-concept researchers have consistently identified gender differences, with females reporting lower physical self-concept than males across multiple physical activity settings, including physical education (Caglar, 2009; Hagger, Biddle, & Wang, 2005; O'Dea & Abraham, 1999; Schmalz & Davison, 2006).

Although gender differences in physical self-concept are well documented, there is currently only speculation as to why these differences are so distinct within physical education. Many researchers attribute these gender discrepancies to Western society's gender stereotypes (Asci, 2002; Klomsten, Marsh, & Skaalvik, 2005; Klomsten, Skaalvik, & Espenes, 2004; Schmalz & Davison, 2006). While this seems to be a reasonable conclusion, simply attributing gender differences in physical self-concept among physical education students to gender stereotypes may not account for the complexity of this phenomenon. It is likely that gender stereotypes in physical education and female students' frame of reference regarding their physical capabilities and appearance are closely related to physical self-concept development.

## **Physical Self-Concept**

According to Marsh's (1990) theoretical framework, self-concept has a multidimensional and hierarchical structure. In this framework, self-esteem, identified as global self-concept, is divided into academic and nonacademic self-concepts. In the nonacademic domain, self-concept is further separated into social, emotional, and physical self-concept sub-domains. Physical self-concept is a multidimensional facet of nonacademic self-concept (Craven & Marsh, 2008; Marsh, 1990) and the two primary sub-domains of physical self-concept are physical ability and physical appearance, which are further divided into nine separate sub-categories. More specifically, Marsh and colleagues (Marsh, Richards, Johnson, Roche, & Treymayne, 1994) suggest that an individual's perception of his or her physical strength, body fat, physical activity levels, endurance, sporting ability, physical coordination, physical health, physical appearance, and physical flexibility all contribute to his or her overall physical self-concept (See Figure 2.1). Self-concept is constructed in relation to the surrounding environment (Marsh, 1990; Marsh & Shalveson, 1985), and the Internal/External Frame-of-Reference (I/E) Model (Marsh, 1986) provides a valuable theoretical perspective to examine the development of these multiple facets of physical self-concept in physical education.

**Internal /External frame-of-reference model.** Previous inquiry of self-concept development within the academic domain has established that the construction of self-concept is related to both internal and external factors (Marsh & Craven, 2002). Marsh's (1986) Internal/External (I/E) Frame-of-Reference Model provides a theoretical framework for understanding the development of self-concept in relation to internal and external comparisons (Craven & Marsh, 2006; Marsh, 1990; Marsh & Craven, 2002). The I/E Frame-of-Reference Model is based on the distinctiveness of and potential interactions between internal and external

frames of reference (Marsh & Yeung, 1998). Theorists' posit that individuals use: (a) internal comparisons of ability (e.g. comparing current performances to past performances) in different domains to construct self-concept within specific domains; and (b) external comparisons of ability (e.g. comparing personal performance on a task to a peer's performance on the same task) in order to construct domain-specific self-concepts (Craven & Marsh, 2006; Marsh & Craven, 2002).

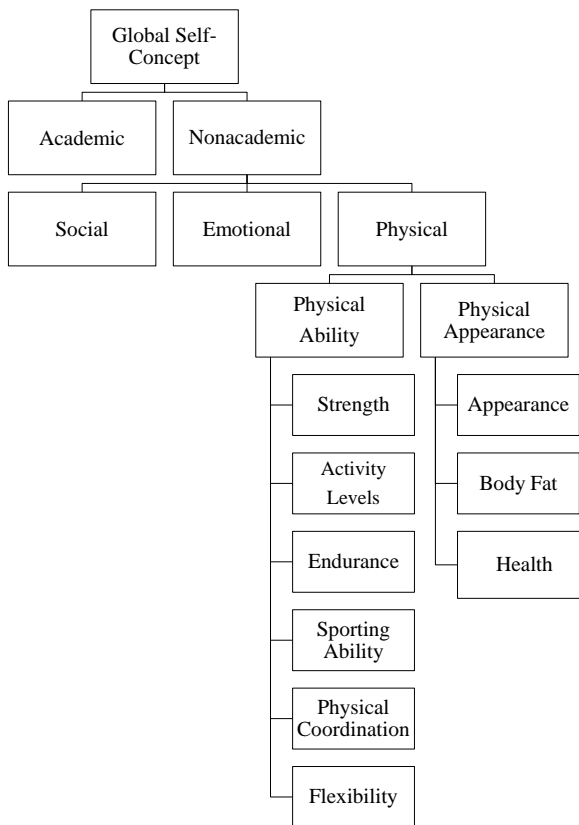


Figure 2.1. The Hierarchal Structure of Self-Concept and Physical Self-Concept.

Since the original development of the model, Skaalvik and Skaalvik (2002) have identified more specific internal and external frames of reference and sources of information within school settings. The five sources of information identified for both frames of reference are: (a) direct observations of achievement, (b) the teachers' responses and comments, (c) responses and comments from classmates, (d) responses and comments from individuals outside



the class, and (e) grades. For external comparisons, students may use school-average ability, class-average ability, students within their class, or students outside of their class as frames of reference. For instance, students may overhear the teacher complimenting another student's achievement in a particular subject and use this external source of information to form his or her respective domain-specific self-concept. Likewise, the frames of reference for internal comparisons are focused on achievements in different school subjects at the same point in time, in the same subject over an extended period of time, in different subjects with respective goals and aspirations, and in different subjects with subsequent effort in each (Skaalvik & Skaalvik, 2002). Thus, a student may compare his or her grade in a particular subject to grades received in the same subject in a previous year and use this internal comparison to construct his or her self-concept in that area.

The I/E Frame-of-Reference Model is a robust framework that has demonstrated cross-cultural generalizability within academic settings (Marsh & Yeung, 1998; Marsh, Kong, & Hau, 2001). According to a meta-analysis conducted by Moller and colleagues, this framework is applicable across gender, age groups, cultures, and various achievement settings (Moller, Pohlmann, Koller, & Marsh, 2009). Therefore, this model is well-suited for examination of the role frame of reference may play in physical self-concept development in physical education. Unfortunately, investigation of the I/E Frame-of-Reference Model in the physical domain is extremely limited. Although incomplete, previous studies have begun to provide preliminary support for frame of reference effects in the development of physical self-concept in physical education (Gheris, Kress, & Swalm, 2010; Trautwein, Gerlach, & Ludtke, 2008). For example, it has been documented that students often compare their current performance on a specific task with their own previous performances (Gheris et al., 2010). In addition, Marsh (1993) reported

that social comparisons of running ability among students impacted their own self-perceptions in the physical education class.

The context of physical education provides a complex setting to negotiate the development of physical self-concept. For instance, PE classrooms often have children exhibiting skills in social settings and such public displays of ability provide an optimal scenario for external social comparisons (Gheris et al., 2010; Trautwein et al., 2008). It is likely that in physical education, both internal and external frames of reference work in combination with one another, and in relation to the different sources of information outlined by Skaalvik and Skaalvik (2002). For instance, a physical educator may provide corrective feedback regarding a student's performance of a particular skill, such as throwing (e.g. "Remember to turn your side to the target."). The student may perceive that he or she is exerting the same amount of effort to execute the skill as if completing an exam in math. However, if feedback from the math teacher is positive regarding his or her performance (e.g. "You did a great job on this exam!"), the student may form negative internal perceptions of his or her ability in physical education and physical self-concept may be negatively influenced. In a similar manner, a different student may overhear the physical education teacher's corrective feedback regarding throwing and observe his or her classmate working to correct a skill that he or she has already mastered. This student may use this external comparison and evaluate himself or herself more positively, which would have a positive impact on physical self-concept.

Given the above examples, it is reasonable to conclude that the I/E Frame-of-Reference Model can be readily applied to a physical education setting. It is inferred that perceptions of ability play a major role in physical self-concept development (Marsh et al., 2010), yet research of frame of reference in physical education has centered on students' actual ability or utilized

only quantitative data without taking students' actual perceptions and interpretations of ability into consideration (Chanal, Marsh, Sarrazin, & Bois, 2005; Trautwein et al., 2008). Considering the lack of extant research in this area, there is a substantial need to examine students' physical self-concepts and perceptions of the physical education environment from a qualitative perspective. A deeper understanding of students' personal interpretations of physical self-concept development in physical education can provide physical educators with valuable information that could empower them to become more effective educators. A phenomenological methodology provides a unique perspective that allows the researcher to become immersed in the physical education experiences of participants and observe the environment firsthand. Therefore, the purpose of this study was to provide in-depth descriptions of female students' personal interpretations of physical self-concept, frame of reference, and the physical education environment using a phenomenological approach

## **Methods**

### **Qualitative Design**

Considering the extensive role self-perceptions play in physical self-concept development, this study employed a phenomenological methodology in order to closely examine students' personal perceptions and views (van Manen, 2011). One advantage of using a phenomenological approach is its ability to describe a phenomenon and how individuals interpret this phenomenon (Patton, 2002). In addition, such methodology allows the researcher to become immersed in the experiences of the study participants (van Manen, 1990, 2011). Consequently, in this study, asking students to describe their experiences, perceptions, and feelings in-depth provided deeper insights into their personal perceptions of frame of reference, the physical education environment, and physical self-concept.

According to van Manen (1990, 2011), a phenomenological methodology involves three primary data collection strategies: (a) observation, (b) field notes, and (c) interviewing. In a phenomenological approach, the researcher plays an essential role and must integrate him or herself into the participants' environment to gain an in-depth understanding of the phenomenon. Through conducting detailed observations the researcher attempts to describe, explain, and interpret participant experiences. In order to understand how individuals interpret events or environments, the researcher must also observe these events and environments firsthand (Patton, 2002). This experience allows the researcher an additional viewpoint other than simply that of the participant (van Manen, 1990, 2011). In a similar manner, researchers then conduct in-depth interviews to gain insight into the participants' interpretations of the phenomenon (Patton, 2002). Finally, throughout the entire process, the researcher attempts to describe and understand the phenomena at hand through both writing and rewriting field notes and his or her personal interpretations of the phenomenon (van Manen, 1990, 2011).

### **Participants**

Participants in this study were ten female students ( $N= 10$ ) enrolled in one ninth grade ( $n=6$ ) and one tenth grade ( $n=4$ ) physical education class at a local all-girls private high school. The girls reported their ethnicity as Caucasian (100%), with a mean age of 14.7 years ( $SD=.48$ ). All of the students were self-described as physically active and were involved in various structured and informal physical activities outside of school (e.g. running, soccer, basketball, bowling, etc.). In addition, all of the girls were consistently observed participating during the physical education classes.

## **Setting**

Classes took place across two consecutive semesters (spring and fall) and two participants were enrolled in both classes. Classes were taught by one female certified physical education teacher and met daily for 50 minute time periods. The physical education program at the school was based on a multi-activity model and each class participated in at least three physical education curricular units per semester. Field notes provided rich descriptions of several of the units and the atmosphere of the class during each unit. Units included individual lifetime activities such as badminton, archery, Pickleball, and fitness exercises. Team sport activities like basketball and softball were also offered. In addition, nine weeks of the semester were spent in health units where topics such as CPR and eating disorders were covered. All students were required to dress out in school-issued uniforms (identical t-shirts and athletic shorts of their choice) during physical education classes. Students were required to take two semester credits of physical education before graduation and received a letter grade for the course. Grades were based on participation, dressing out, and scores on written exams.

It is important to note that throughout the school there was an overwhelming sense that all-girls schools are preferable to coed settings. This culture and belief that same-sex classes are “better” was reinforced by both students and teachers, especially with regard to physical education. Therefore, the overall perception that all-girls classes are significantly more beneficial to female students than coed classes was taken into consideration when interpreting the results of this study.

## **Role of the Researcher**

All observations, field notes, and interviews were completed by one female researcher who was familiar with the school, administration, and faculty. She had facilitated field teaching

experiences and observations at this school for physical education teacher education students from a local university throughout the two years prior to data collection. She also accompanied university students during observations and field teaching experiences. In addition, the researcher was a former physical education teacher and viewed the physical education environment from an educator's perspective. She became a fixture in the classes and throughout the course of field observations and interviews, students would often ask their physical education teacher about the researcher when she was not present. Therefore, participants in this study were very comfortable with her and accustomed to her presence in their physical education classes. As a result, participants were open and forthcoming throughout the data collection process. This open relationship with both the participants and the teacher facilitated follow-up interviews and discussion where the researcher was able to spend a significant amount of time discussing emerging themes as a method to reduce researcher bias.

## **Procedures**

Permission to conduct this study was granted by the University Institutional Review Board. Students were provided with a full description of the study procedures prior to participation and informed consent was collected from parents. Likewise, all participants were required to submit a signed child assent form prior to participation. Participants first completed questionnaires containing demographic questions and items evaluating physical self-concept. Survey responses were used as selection criteria for interviews. In addition, participants were observed during physical education classes.

## **Measures**

Participants were selected for interviews based upon their responses to the global physical self-concept scale ( $M=4.01$ ,  $SD=1.54$ ) of the PSDQ-S (Marsh et al., 2010) (See

Appendix B). Purposeful sampling took place in order to recruit students with a wide range of scores on the PSDQ-S (1.00-5.67). Students ( $N=12$ ) from both semesters (spring and fall) were invited to participate in interviews, however, two of the invited students declined citing the time commitment as a barrier to participation

**PSDQ-S.** The PSDQ-S (Marsh et al., 2010) is a psychometrically sound 40 item instrument containing items from the PSDQ (Marsh, 1996) and it has good reliability, test-retest stability over both short and long term, a well-defined factor structure that is invariant over gender, and both convergent and discriminant validity (Marsh, 1997, 2002; Nigg, Norman, Rossi, & Benisovich, 2001). The PSDQ-S is a valid and reliable measure with reliability coefficients ranging from .84-.91 (Marsh et al., 2010). Items from the global physical subscale, which require individuals to respond to the declarative statements 1) “Physically, I feel good about myself”, 2) “Physically, I am happy with myself”, and 3) “I feel good about who I am physically” on a 6-point Likert scale ranging from 1 (not at all true) to 6 (very true), were used to select participants for interviews.

## **Data Collection**

**Field Observations.** Field observations ( $N=30$ ) were conducted and each observation lasted for the duration of one physical education class period (50 minutes). Observations spanned across the spring ( $n=14$ ) and fall ( $n=16$ ) semesters. During observations, extensive field notes were taken and the researcher provided detailed descriptions of the physical education environment, social context, activities, students’ interactions with one another, and interactions with the teacher. Immediately following each observation, field notes were typed, analyzed, and separated into the following categories: Class Description, Additional Notes, Perceptions and Thoughts, and Further Questions (See Appendix C).

**Interviews.** A total of nineteen participant interviews ( $N=19$ ) were completed. Each interview lasted approximately 30 minutes ( $M= 30.16$ ;  $SD=9.36$ ) and was audio recorded. Interviews took place before school, during lunch periods, or after school and were conducted in an empty health classroom located in the school gymnasium. The majority of participants completed two interviews; however, one student (Morgan) completed the interview protocol during one session and declined to participate in a second interview. Participants responded to questions such as: “What do you like/dislike about your physical education class?”, “How would you describe your abilities in PE?”, and “How would you describe the atmosphere of your PE class?”. In addition to the interview protocol (See Appendix D), discussion was prompted based on events taking place in the physical education class (e.g. “Can you tell me more about what you did in class today?”).

### **Data Analysis**

Phenomenological themes are understood as “the structures of experience” (van Manen, 1990, p.79) and an integral component of a phenomenological research design is thematic analysis. It is important that those who were engaged in the experience play a significant role and provide personal insight during the coding process. Thus, field notes and interview transcriptions were analyzed line-by-line by the primary researcher. Emerging themes identified during the reflective process (van Manen, 2011) were then discussed with participants during follow-up interviews. An inductive analysis approach was employed to identify categories, sub-themes, and higher-order themes (Patton, 2002). Interviews, field notes, and member checks were used in order to triangulate the data and reduce researcher bias. In addition, informal collaborative reflection with a second researcher took place during revision of the initial themes (van Menen, 2011).



## Results

Three major themes developed from data analysis: (a) *Social Risk*, (b) *A Favorable Competitive Environment*, and (c) *Points of Perception*. Multiple aspects of *Social Risk* in coeducational (coed) physical education were identified, specifically anxiety and perceived pressures regarding physical ability and appearance. However, same-sex physical education was perceived to negate these concerns and was viewed as a positive alternative. Competition was frequently discussed in terms of *A Favorable Competitive Environment*. Overall, participants enjoyed and valued competition but it was considered to be activity dependent, unpleasant in certain circumstances, and desirable only in appropriate amounts. Finally, participants outlined two *Points of Perception*, “firsthand accounts” and “external feedback”, which provided a basis for physical self-concept development.

### **Social Risk**

“Social Risk” was a major theme that emerged from data analysis. All participants (100%) indicated that physical education created a social environment that was distinct from other classes and some (60 %, 6/10) saw the social atmosphere as the most positive aspect of physical education. However, the social environment was not always viewed positively. The class structure, specifically a coed setting, was perceived to have potential negative social consequences.

**Appearance in coed classes.** Participants addressed two primary “Social Risks” in coed physical education; anxiety regarding appearance (50 %, 5/10) and physical ability (80%, 8/10). Participants drew on past experiences and compared their current class to coed classes they experienced during middle school. For example, Vanessa (all names are pseudonyms) (mid-

range physical self-concept) discussed how important appearance could be in coed physical education when she said:

The girls would, before they go out to PE they would go and fix their hair and make sure that nothing was wrong or whatever because of the guys. But here it's just like, you get changed and then you go out and you don't really have to worry about if your hair is out of place or if you haven't shaved or something like that. That really doesn't go against you I guess. Just cause all-girls, like, some girls haven't shaved or whatever so you don't have to worry about being criticized.

Dee (high physical self-concept) expressed similar feelings and mentioned that in an all-female environment the girls didn't "worry as much about sweating". Laura (mid-level physical self-concept) said she tries harder in an all-girls class because "no one really cares about your appearance" and she believed that in coed classes the girls "don't try as hard" and "they only cared about their appearance". The perceived pressure to appear a particular way in coed classes was discussed by several participants. Beth (low physical self-concept) considered the coed atmosphere to set different expectations and demands on girls with regard to appearance and said, "I think the pressure would be higher in a coed school because there's guys everywhere and you have to worry about what you look like and how skinny you are, and make-up and clothes, stuff like that". It is interesting to note that throughout the course of field observations, there was never an instance when a student did not dress in the required physical education uniform (school issued top and athletic shorts) and between two classes ( $n=46$ ), only one student was ever noted to wear visible make-up.

**Ability in coed classes.** Participants also discussed in detail perceived "Social Risk" associated with ability in coed physical education. There is a substantial threat for students who are considered to be less skilled in a coed class and according to Morgan (low physical self-concept), the less skilled students are the girls. She stated, "I feel like guys have their own level and girls have their own level of skills". Alicia (high physical self-concept) articulated similar

feelings and said, “I think for coed you have more of the varied skill set... and I think there’s big differences in coed PE.” According to Amanda (mid-level physical self-concept), “some guys have different abilities than girls” and boys are “more athletic”.

Even girls like Michelle (high physical self-concept), who consider themselves skilled, may not have sufficient ability to succeed in a coed setting. She said, “I could always like, hang ya know? Like up there, but maybe not in like, basketball. Because boys tend to overpower in those kinds of sports.” The idea that boys overpower girls in coed physical education and take control of the class was consistent among other participants. Dee said the boys would “be playing hard and running fast so the girls didn’t have time to reach it [the ball]”. She also commented that the girls were “letting the guys do whatever they want” and “weren’t participating as much [as the boys]”. Amanda also discussed how girls’ participation can be negatively impacted in coed classes and said, “I feel like guys are more prone to exclude girls cause they’re like ‘Oh she can’t do it, she can’t do this, she can’t do that’.” Feelings of inadequacy, awkwardness, and embarrassment regarding ability in a coed environment were common threads for the girls in this study. Beth commented, “Guys would get mad if you didn’t win or do something right.” Heather (high physical self-concept) discussed how insufficient knowledge and ability in physical education could be detrimental for girls and said:

With coed, the guys know how to play sports, so when you would ask a question, you didn’t want to seem stupid. In all-girls, most of the girls in my class don’t really know all the knick-knack rules of the sport, so you don’t really feel like an outcast asking a question.

Surprisingly, interview data suggested that in coed classes the some of the girls were not only worried about a lack of ability, but also appearing to be overly skilled. According to participants (30%, 3/10), there are negative consequences for girls who are “athletic” in coed physical education. They appear to be “trying too hard” and are at risk for name calling. For

example, Dee expanded on this idea when she stated that there was “a really athletic, competitive girl at my old school and they called her a man”. Heather had a similar experience and said, “There was this one girl, everyone called her ‘the beast’ because she was just amazing at everything we did and she was better than some of the guys.” Morgan explained perceived pressures regarding appearance and ability best and said, “Guys are supposed to be better and manlier looking than girls are.” She also stated, “When guys are there you don't wanna look like, not manly but, like you're better than they are and so you don't wanna try as hard.”

Field notes provided evidence of a wide range of skill levels in each class. However, the students observed to be the most skilled were often cheered on by classmates and provided with positive feedback. There were no instances reported or observed where high skilled students experienced negative consequences regarding ability. Thus, all participants (100%) expressed that same-sex physical education classes reduced these concerns. According to Beth, there are advantages to an all-female environment because, “You're not as embarrassed to do different things cause there are not guys watching you.” Heather had a similar attitude and commented, “You don't have to feel embarrassed. Like, if you can't kick the ball across the gym, you don't feel embarrassed, because girls don't always care about that kind of stuff.” Rebecca (low physical self-concept) preferred an all-girls class because she felt less pressure to perform. She said, “I don't have to be impressive. Stuff like that. And people don't have to impress me or anybody else.” Beth liked her same-sex class better than coed classes because “they [the girls] don't really care if you win or not”. These results suggest that unlike a coed setting where there was perceived pressure to appear and perform a particular way, the all-girls environment is one with no fear of negative consequences associated with not meeting unspoken expectations.

## **A Favorable Competitive Environment**

The second theme that emerged from participant interviews was “A Favorable Competitive Environment”. All participants (100%) discussed both positive and negative feelings toward competition and the majority (80 %, 8/10) stated that they valued and enjoyed competition in physical education. The majority of girls (80%, 8/10) also said competition was appropriate for physical education and there was a consistent belief that it is an enjoyable tool to become more active, involved, and skilled in certain circumstances. However, there was a consistent theme that competition is activity dependent, unpleasant in a coed setting, and only appropriate in certain amounts.

**Activity dependent.** Over half (75%, 6/8) of the participants who believed competition is acceptable in a physical education environment said it was activity dependent. The three most popular activities mentioned as favorites during interviews were archery (50%, 5/10), softball (40%, 4/10), and Pickleball (40%, 4/10), and for each some degree of competition was involved. The archery unit culminated with an individual tournament, during the softball unit the teacher recorded team scores, and the Pickleball unit consisted of a partner tournament. Alicia described softball as “kind of competitive” because the teacher kept score, but “people were more competitive” when it came to Pickleball. The Pickleball tournament was frequently discussed and was considered a popular activity throughout the school. Each year the school would hold one tournament and overall winners received a t-shirt. Michelle agreed that competition was heightened during the Pickleball tournament and stated, “It got really competitive.” Student perceptions of competition during activities varied and competition levels often fluctuated between units. Morgan addressed this variation in her class when she said, “They [the teachers]

teach everyone how to play sports and some are more competitive than others, but there's a variety of different things."

The physical education students at this school had the opportunity to participate in a variety of activities over the course of the semester and throughout field observations it was often noted that the atmosphere of the class would change depending on the activity. The most evident shift was observed during the archery unit. The first half of the unit had been spent practicing and the second half was devoted to individual competition. In the first lesson where scores were recorded, an obvious transition in the atmosphere occurred. During practice rounds the students were primarily concerned with socializing and conversation was often focused on irrelevant topics (e.g. boys, music videos, movies). However, when the teacher began keeping score, the focus of conversation shifted and was concentrated on topics related to the lesson such as shooting, performance, and scorekeeping. Overall, the class appeared to become more engaged in the activity. In contrast, there were several activities, such as the fitness unit, where little to no competition was observed. Therefore, competition in this physical education class was often activity dependent.

**Unpleasant in coed settings.** Participants also discussed how competition was unpleasant in a coed setting. When asked to describe the negative aspects of competition Amanda said, "Well I used to go to a coed school so it was a little bit more uncomfortable with guys, but it's really not here cause you can kindof be yourself." Another participant, Michelle, described the differences between coed and same-sex classes and said, "It's a little different because in coed PE it was more competitive, but in this one it's not as competitive cause everyone's kindof laid back".

Often participants (50%, 5/10) described males in physical education as “aggressive” or “rough”. For example, when explaining why she believes boys and girls should participate in activities separately Rebecca said, “Cause some boys and girls aren’t the same. It’s like you’re playing, such as a mouse playing a bear.” The fear of being overpowered or even injured when participating in competitive physical activities with males was mentioned by Vanessa, who said she would not want to play a sport with boys because “they get pretty aggressive if you’re playing on the same team”. She said in that situation she would opt out of the game and “let them do all the work”. Throughout participant interviews, the idea that an all-girls physical education class is a more positive setting for competition was frequently discussed. Morgan mentioned that the all-girls environment was well-suited for competition because “you can be yourself really and do what you want to do and be competitive”. Amanda, who described herself as “pretty competitive”, also suggested that the environment of the class was a positive outlet for competition and referred to it as a “safe environment to be able to play” and a “safe place to interact.” Although the belief that competition in a coed physical education setting was unpleasant and could be physically or emotionally damaging to girls was prevalent, for the girls in this study same-sex physical education was a solution to their concerns.

**Acceptable levels.** Although the majority of girls (80%, 8/10) preferred competition and felt their own physical education environment to be a safe and comfortable outlet for it, a large percentage (60%, 6/10) discussed an acceptable level of competition. For example, although Pickleball was often viewed in a positive light, Morgan offered another viewpoint when she said, “Some people do get really, really, into it. I got like really into it too, and it’s to the point to where it’s not fun cause you’re just trying too hard.” Michelle also suggested that there is an acceptable level of competition and commented, “If you don’t have competition it’s not really

that fun, but if you have too much competition then people get mad and it's just a lot a stupid stuff going on.”

When describing the acceptable level of competition for physical education, participants discussed negative aspects to either not having enough competition or being immersed in an overly competitive environment. The physical education classes the participants were enrolled in were described as “not really competitive”. For half of the participants (50%, 5/10), a lack of competition was even perceived negatively and they expressed a desire for more competition. If there appeared to be a lack of competition in particular sports (e.g. basketball or badminton) that were intended to be competitive, the girls who were self-described to be “taking the game seriously” expressed a sense of frustration. Participants mentioned that in basketball there were other students who “really didn’t care” or who were “lazy” and without competition they couldn’t “get a good game” and the games would be “so boring”. Overall, there was a general theme that an appropriate level of competition was enjoyable when experienced in a safe and positive environment.

### **Points of Perception**

Finally, participants in this study identified firsthand accounts of achievement and external feedback as “Points of Perception” related to physical self-concept development. Firsthand accounts of others’ achievements and their own individual accomplishments were often identified by the girls as sources of comparison for multiple aspects of physical self-concept. In addition, participants used external feedback from others in order to construct their physical self-concepts.

**Firsthand accounts of others.** The majority of participants (80%, 8/10) discussed multiple aspects of physical self-concept in relation to firsthand accounts of others’ ability,



others' appearance, or their own performances. Field observations supported this finding. For instance, the structure of the archery unit facilitated direct observations of classmates. Students watched one another shoot and were often overheard cheering and making encouraging remarks such as "good job" and "that was a good shot". In one instance, a student told her group member "good job" when she hit the target, yet later referred to herself as "terrible" when she missed her own shot. She observed her peer hit the target and used this firsthand account of another's performance to provide information regarding her own competence. Throughout the unit, it was not uncommon to observe the students encouraging their classmates, yet often making degrading comments regarding their own personal performances.

For some participants (40%, 4/10), the most common source for firsthand accounts of physical ability were family members. The physical self-concept domains of flexibility, strength, and sports ability were all described via firsthand accounts of family members' ability in these areas. For example, both Beth and Amanda described themselves as "not as flexible" as their sisters and Alicia evaluated her sports ability positively because her family is "really athletic". Although participants described themselves in relation to others in several of the physical self-concept sub-domains, they frequently discussed their appearance in relation to that of friends (20%, 2/10) and other girls in general (70%, 7/10). Morgan described her friends as the opposite of herself when she said "My friends are just really tiny and they're not as tall as me."

Field notes validated friends as a source of firsthand comparisons for appearance. During a "Power Walk" lesson, two girls were observed comparing their stomachs and thighs and pinching body fat on their midsections. Throughout the conversation, they were overheard commenting "I'm insecure in a swimsuit now", "I need to lose a few pounds", and "I need to get back in shape". When firsthand accounts of other girls in general were the primary sources of

information, comparisons were based on appearance, body shape, and body size. When asked to describe her appearance Heather stated, “I would say that there are prettier girls and then there are like...I’m better looking than some girls.” Vanessa communicated similar feelings when discussing various aspects of her own body, such as muscle definition, and commented that her legs were “not as skinny as somebody else’s”. She also expressed conflicting emotions related to comparing herself to others who had different body shapes and sizes:

It can be bad for your.... I guess if you’re looking at someone who is really skinny it can be bad. Like, I really wanna look like her but I can’t, just because how my body is and how I’m built, because I play soccer and all these other sports so much. Morgan also talked about comparing herself to others and the idea of being “skinny”.

She said, “It’s just, everyone is skinny I guess and you fit in more [if you are also skinny]”. Another participant, Beth, was very honest regarding her firsthand accounts of others’ appearance when she admitted, “I do look at the super-skinny and wish that I had that body.” It is interesting to note that even when discussing endurance, Rebecca referred back to her body shape and size and compared herself to other girls when she said, “Well, I’m not one of those really, really, skinny girls that can run, you know.” For the girls in this study, firsthand accounts of others’ physical appearance were the most frequently discussed sources of information.

**Firsthand accounts of ability.** All participants (100%) discussed firsthand accounts of personal performance as “Points of Perception” for physical ability. For example, Michelle expressed her feelings of coordination when she commented, “Coordination, I have pretty good hand and feet coordination, like soccer, but there are a couple of things, like Pickleball, that I’m not good at.” All participants (100%) discussed flexibility in relation to firsthand accounts of their own personal achievements. They made comments such as “I can only do a left split” or “I can’t touch my toes”. Participants also used firsthand accounts of personal performance when comparing their academic and physical abilities. For example, Dee compared her achievements

in the physical domain to her academic abilities and said, “Well, I don’t really exercise that much so I wouldn’t say I’m really an athlete, but I mean, I’m really good at math.”

**External feedback.** The second “Point of Perception” for participants in this study (50%, 5/10) was external feedback, specifically feedback from family members (20%, 2/10), coaches (20%, 2/10), and friends (10%, 1/10). For instance, Vanessa said she knows how to describe her abilities in soccer “by what my parents tell me”. Beth discussed comments from her friends when asked about her appearance and said, “Friends tell me I’m pretty and stuff. I mean, I don’t really agree with them.” Although it was not discussed during participant interviews, field observations provided additional evidence that comments from others may be a source of information in the physical education environment. Throughout the archery unit the girls consistently provided positive feedback to one another regarding their performances. For example, one was overheard saying “Becky is a pro at this” and later in the same lesson Becky told her group “I’m finally good at something”. Comments and responses regarding performance were not limited to verbal feedback. During the badminton tournament, one partner group was consistently observed giving each other high-fives when they scored a point. In addition, the teacher was often noted to provide positive performance, corrective, and nonverbal feedback to students. Therefore, although participants may not have been aware of it, they were often receiving feedback from their peers and the teacher.

## **Discussion**

This study examined adolescent females’ physical self-concept from a phenomenological perspective. Results indicate that female students in same-sex physical education classes may perceive coed classes as places where they are at risk for emotional and physical harm. Participants in this study discussed perceived pressures regarding both physical ability and

appearance in coed physical education. Results also highlight the role of competition in physical education and how it impacts the class atmosphere. Participants complied with traditional gender expectations and perceived males as aggressive, rough, and dangerous during competitive activities. All participants viewed same-sex classes as a solution to their concerns regarding physical ability, physical appearance, and competition in physical education. In addition, results indicate that female physical education students use multiple sources of information to construct their own physical self-perceptions of ability and appearance.

Participants in this study indicated a significant perceived social risk associated with coed physical education, specifically concerns with regard to their appearance. These results are not surprising considering the role of the body in physical education and the girls' perceptions that they were often "being watched" by the boys during their coed classes. For example, physical education often requires students to put their bodies on display and use them as a means of demonstrating knowledge and skill in the physical domain (Azzarito & Solmon, 2006, 2009; Larsson, Fagrell, & Redelius, 2009). In addition, students are typically expected to wear a school-issued uniform, which was identified as a negative aspect of coed physical education, perhaps because it can be uncomfortable or show certain parts of the body. In physical education students may be required to wear shorts that expose their legs and if the uniform is ill-fitting, it can emphasize feminine aspects of the body such as the breasts, hips, and waist. As girls progress through adolescence, they often report increased levels of body dissatisfaction, specifically with their hips, thighs, and waist (Rosenblum & Lewis, 1999) and if students are uncomfortable in their uniforms these feeling may be amplified. Participants indicated that the coed setting was a site where "guys are watching you" and expressed significant concern regarding the presentation of their bodies in coed classes. Their concern was perhaps a result of

perceived male observation and increased feelings of discontent with feminine-typed body parts (Azzarito & Solmon, 2006; Lawler & Nixon, 2011; Rosenblum & Lewis, 1999). Anxiety was directed toward how the body was perceived in coed physical education and centered on traditionally stereotypical attributes of femininity such as wearing make-up, having a nice-looking hairstyle, or having shaved legs. Participants also expressed concern with appearing less feminine, which included sweating during physical activity. Therefore, for girls like the ones in this study who may feel watched by boys in their classes (Flintoff & Scranton, 2001; Webb, McCaughtry, & McDonald, 2004), public displays of the body in combination with perceptions of male observation in physical education can create negative feelings of anxiety and pressure.

These results hold many implications for practitioners. The internalization of appearance ideals is associated with increased body dissatisfaction among adolescent girls (Lawler & Nixon, 2011) and appearance is an important sub-domain of physical self-concept (Marsh et al., 1994). Therefore, increased anxiety regarding how the body is presented, how it meets appearance ideals, and how it is perceived by others (i.e. male classmates) in coed physical education could potentially negatively impact female students' physical self-concepts. The environment of the coed class can sometimes create an increased awareness of the body and encourage conformity to gendered body ideals for young girls. Teachers should be aware that female students may feel as if they are being watched by male classmates and keep this in mind when asking students to perform skills in front of the class or participate in activities that put the body on display in front of others. Teachers should also consider how physical education uniforms can create unease and anxiety for some students. For example, some girls may be uncomfortable wearing shorts if they feel like they need to shave their legs. Physical educators can focus on creating an environment

where students feel comfortable, safe, and accepted to counteract female students' perceptions of surveillance and feelings of unease resulting from gendered body expectations in coed classes.

Participants also identified negative consequences associated with possessing either too much or not enough skill in coed physical education. Consistent with previous research, there were negative social consequences such as name calling, harassment, and exclusion from activities, associated with the girls' physical ability (Cockburn & Clarke, 2002; Hills & Croston, 2012). For example, participants indicated that they may be at risk of being called a "man" or "beast" if they were considered to be "athletic" or would even be excluded from activities entirely. These results are consistent with previous research stating that girls who are viewed as "athletic" or are high-skilled in physical activity and sport are at risk for having their sexuality questioned and may be called names like "tomboy", "butch", or "lesbian" (Clarke, 2002; Gorely, Holroyd, & Kirk, 2003). In their coed classes, the girls in this study were attempting to balance displays of skillfulness with feminine and masculine expectations. Girls tend to value skillfulness and have a desire to appear strong and competent in physical activities (Azzarito, 2010; Lee, 2009), yet a desire to avoid displays of masculinity in physical education is not uncommon for girls (Azzarito & Solmon, 2009), perhaps due to the perceived social cost of demonstrating athleticism.

In contrast, when girls in coed physical education don't possess or demonstrate adequate skill, they are often excluded from activities. Coed classes frequently participate in male-stereotyped sports (Brown & Rich, 2002; Gorely et al., 2003) that require students to perform masculine or feminine traits and girls may either choose not to participate or allow the high-skilled males to dominate during these activities. For example, according to one participant, in a masculine activity like basketball, students who demonstrate conventionally masculine

characteristics such as aggressiveness, speed, and power will be more successful, and these students are typically the males in the class. As Michelle indicated, girls who do not possess these traits may consider themselves to be unskilled in physical education, which can negatively impact their physical self-concepts. In addition, if these girls are using an external frame of reference to evaluate their physical abilities, they will likely perceive themselves as inadequately skilled.

Competition in physical education was also a key theme identified in this study. In a coed setting, competition was perceived negatively and influenced girls' participation in activities during class. These results are consistent with previous research indicating that girls in coed classes are less active than boys (McKenzie, Prochaska, Sallis, & Lamaster, 2004). Participants mentioned "not being on the same level as boys" in physical education and expressed a fear of physical harm when competition was involved and girls played alongside or against boys. The girls reflected that males tended to dominate during competitive activities like basketball and displayed "rough" or "aggressive" behaviors. A male-model of physical education that includes traditionally masculine and competitive activities and reinforces a dominant gender order is often common in coed settings (Kirk, 2002, 2003). For males, such an opportunity to demonstrate their skill, assertiveness, and masculinity during these competitive activities translates into physical and social capital in the physical education environment. In the traditionally masculine culture of coed physical education, teachers often provide male-stereotyped activities which value aggressiveness, pain tolerance, and strength (Brown & Rich, 2002; Kirk, 2002, 2003). For girls like the ones in this study, activities that are often dominated by the males in their classes and encourage these traditionally masculine characteristics can create fear and anxiety. Although teachers may not necessarily provide activities that involve physical contact, they should

consider physical closeness and competition when making curricular choices. For example, participants often discussed basketball as a male-dominated contact sport that boys and girls should participate in separately. Participation in such activities creates unease for girls regarding their skill level and their physical or emotional safety. If teachers desire to implement competitive activities in their classes, they should consider less traditional alternatives, like ultimate Frisbee, that are not gender stereotyped. Modifying equipment (e.g. a Frisbee instead of a basketball) and rules (e.g. everyone must touch the Frisbee before the team scores) allows the teacher to create a more inclusive environment that will promote gender equity. In addition, these modifications can create balance for a wide range of skillfulness in the class and produce a more welcoming atmosphere for all students, regardless of skill level.

While all of the participants in this study preferred same-sex physical education and identified it as a positive alternative to coed classes, it is important to note that the culture of the school strongly advocated for an all-girls environment. However, the environment and atmosphere of the girls' previous coed physical education classes may have also contributed to their preferences for all-girls physical education. For instance, unfortunately teachers often acknowledge male dominance in their classes as something that is expected and may consequently avoid challenging traditional stereotypes or favor boys over girls (Chalabaev, Trouilloud, & Jussim, 2009; Chepyator-Thomas & Ennis, 1997; Larsson et al., 2009). Students and teachers are both aware of the gender order in physical education and generally enforce dominant gender stereotypes associated with hegemonic masculinity (Brown & Rich, 2002; Kirk, 2003; Larsson et al., 2009). Therefore, it is reasonable to assume that conformity to these stereotypes simply creates an environment that influences the experiences students have in the class. For instance, a dominant masculine culture in physical education may regulate



opportunities and access to activities, actual and perceived skillfulness, use and self-evaluation of the body, and teacher-student interactions and relationships (Azzarito & Solmon, 2009; Chepyator-Thompson & Ennis, 1997; Klomsten et al., 2005; Lee, 2009), all of which can influence physical self-concept. Thus, the traditional culture of coed physical education has the potential to create an environment that can negatively impact female students' physical self-concepts. Participant interviews indicated that their previous coed classes did conform to a traditional, masculine model of physical education, therefore, this culture likely contributed to their perceptions that same-sex physical education was "better". Past research has indicated that gender identity and expression is fluid and that teachers can influence the gendered culture of physical education by attempting to provide gender equity in their classes (Azzarito & Katzew, 2010; Azzarito & Solmon, 2006). Therefore, teachers in coed classes should have an awareness of the hidden curriculum, avoid traditional gender stereotyped activities, and structure competitive activities in such a way that all students have an equal opportunity for success. By doing so, they may be able to create an atmosphere that fosters positive physical self-concept development and negates some girls' negative feelings toward coed physical education.

Finally, results of this study provide support for the I/E Frame-of-Reference Model for understanding the development of physical self-concept in relation to internal and external comparison (Craven & Marsh, 2006; Marsh, 1990; Marsh & Craven, 2002) and the five sources of information for self-concept development (Skaalvik & Skaalvik, 2002) in the physical domain. Participants identified internal (i.e. prior experiences and comparisons of ability between domains) and external (i.e. observations of others and external feedback) frames of reference when describing their physical self-concepts. Firsthand accounts of others' accomplishments (e.g. family members, friends, other girls in general) and personal

performances are similar to the first source of information, “direct observations of achievement”. In addition, results support that participants used external feedback from family members, coaches, friends, classmates, and the teacher in the self-evaluation process. These findings provide evidence for three other sources of information, “teachers’ responses and comments”, “responses and comments from classmates”, and “responses and comments from others outside the class”. There was no evidence that participants used grades as a source of information to construct physical self-concept. This is not surprising considering that grades in this physical education class were based on participation, dressing out, and scores on written exams. Therefore, students’ grades did not provide them with any information regarding their physical ability in the class.

The results of this study have many implications for teachers in physical education. A deeper understanding of how students construct physical self-concept in physical education makes it possible to design curriculum and structure classes in ways to promote positive physical self-concept development. Teachers should keep in mind that students are comparing their personal achievements to those of others (Craven & Marsh, 2008; Skaalvik & Skaalvik, 2002) and avoid placing students on display, emphasizing personal ability, and providing negative or degrading feedback in front of the class. Instead, teachers can encourage students to focus on personal improvement and task mastery in order to create a positive learning environment that does not highlight social comparison of ability among classmates (Solmon, 2003). In addition, teachers must be aware of the types of feedback they are providing and strive to give students constructive and corrective feedback regarding skill performance. Finally, teachers should consider students’ prior experiences in the physical domain, experiences outside the class, and achievements in other areas. If teachers are aware of any preconceived notions regarding

physical ability that students bring with them into the class, they will have a better chance of positively impacting student learning and skill development.

In conclusion, this study makes a significant contribution to existing literature by highlighting current issues experienced by girls in coed and same-sex physical education. This study also provides support for the I/E Frame-of-Reference Model and evidence for four sources of information (direct observations of achievement, teachers' responses and comments, responses and comments from classmates, and responses and comments from others outside the class) for physical self-concept development in physical education. Limitations of this study include the lack of diversity and the narrow focus of a same-sex physical education setting. In addition, the fact that the overall culture of the school promoted the idea that all-girls classes are preferable to coed classes should be considered as a limitation. Future research should include additional demographics and cultures in addition to investigating both coed and same-sex physical education classes.

## **CHAPTER THREE: INVESTIGATING A BIG-FISH-LITTLE-POND EFFECT AND MODERATING EFFECTS OF CLASS TYPE FOR GIRLS IN PHYSICAL EDUCATION**

### **Introduction**

A primary goal of physical education is to promote the development of positive physical and global self-concepts (National Association for Sport and Physical Education [NASPE], 2011) and research indicates that a positive physical self-concept results in favorable outcomes among students in physical education (Chanal, Sarrazin, & Bois, 2005; Marsh, Trautwein, Ludtke, Koller, & Baumert, 2006; Trautwein, Gerlach, & Ludtke, 2008). However, females often report a lower physical self-concept than males in physical education (Asci, 2002; Hagger, Biddle, & Wang, 2005; O'Dea & Abraham, 1999) and it is likely that the significant role of social comparison in physical self-concept development (Marsh et al., 2008a) contributes to these gender discrepancies. Marsh's and colleagues' theoretical framework for the Big-Fish-Little-Pond-Effect (BFLPE) provides an explanation for the effects of social comparison on self-concept and offers a unique perspective that could provide insight as to why females typically report a lower physical self-concept in physical education (Marsh & Craven, 2002; Marsh et al., 2008a).

### **Physical Self-Concept**

According to Marsh's (1990) theoretical framework, physical self-concept is an individual's perception of himself or herself within the physical domain. Physical self-concept is a sub-domain of nonacademic self-concept, which is one component of global self-concept. The hierarchal and multidimensional structure of global self-concept (self-esteem) lends itself to examination from a domain-specific perspective (Marsh, Richards, Johnson, Roche, & Treymayne, 1994). Therefore, physical self-concept, specifically, an individual's perception of his or her physical strength, body fat, physical activity levels, endurance, sporting ability,

physical coordination, physical health, physical appearance, and physical flexibility, is the component of self-concept that is most applicable to the physical domain (Marsh, 1990; Marsh & Craven, 2006) (See Figure 3.1).

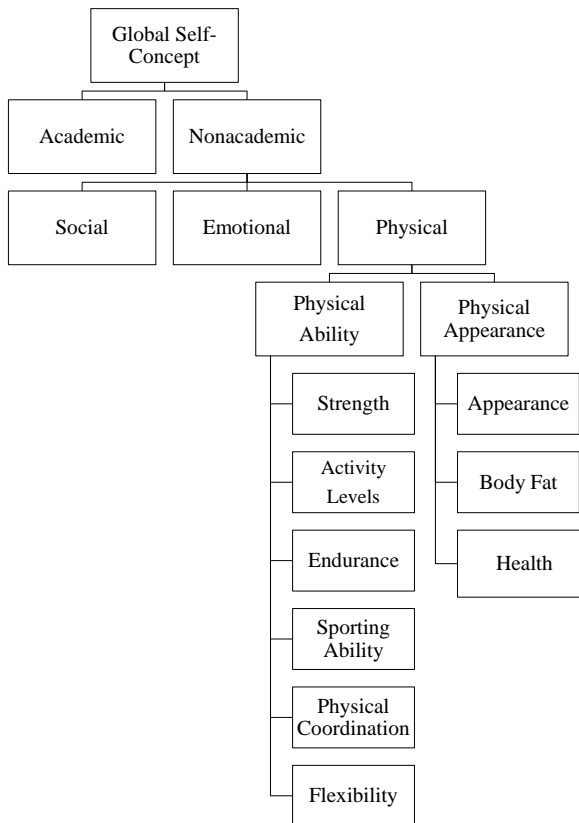


Figure 3.1. The Hierarchal Structure of Self-Concept and Physical Self-Concept.

### **The Big-Fish-Little-Pond-Effect (BFLPE)**

The construction of self-concept is related to both internal and external factors and social comparison is one external factor that influences self-concept development (Marsh & Craven, 2002). In order to provide further explanation of the role of social comparison in self-concept construction, Marsh and colleagues developed the Big-Fish-Little-Pond Effect (BFLPE) framework (Marsh & Craven, 2002; Marsh et al., 2008). The basic premise of the BFLPE is that self-concept is negatively impacted by school and class average ability. In other words, students

with high ability will have a lower self-concept when surrounded by others who also have a high ability. Conversely, students with low averages of ability will have a higher self-concept when surrounded by others with low averages of ability (Chanal et al., 2005; Marsh et al., 2008a; Seaton, Marsh, Yeung, & Craven, 2011). Unfortunately, all students are susceptible to a BFLPE regardless of ability level (Seaton et al., 2011), and are subject to having social comparisons of ability impact their self-concept (Thijs, Verkuyten, & Helmond, 2010).

There is currently substantial support for a BFLPE within the academic domain and the framework has demonstrated internal and external validity as well as cross-cultural generalizability for various sub-domains of academic self-concept (Marsh et al., 2008a; Nagengast & Marsh, 2012; Seaton, Marsh, & Craven, 2010). The BFLPE model is considered to be domain-specific (Marsh et al., 2008a) and previous researchers have identified a stronger BFLPE for some domains (e.g. verbal self-concept, mathematics self-concept) than others (e.g. science self-concept) (Seaton et al., 2011). The domain specificity of the model is attributed to the multidimensional structure of self-concept. Therefore, based on the multidimensionality of self-concept and the BFLPE framework, it is likely that a BFLPE could be observed in the physical domain. However, there is currently very limited support for a BFLPE for physical self-concept in physical education. To date, research has been limited to examining gymnastics and sport self-concepts, but these initial findings have provided initial evidence for a BFLPE in the physical domain (Chanal et al., 2005; Trautwein et al., 2008). For example, students surrounded by classmates with superior gymnastics skills have reported lower gymnastics self-concept (Chanal et al., 2005). In addition, Marsh (1993) reported that students compared their personal fitness in relation to classmates of the same gender and age when constructing their fitness self-concepts. Specifically, social comparisons of running ability among students impacted their own

fitness self-perceptions in the physical education class (Marsh, 1993). Finally, Trautwein and colleagues (2008) have provided support for frame of reference and a BFLPE in physical education and noted that class average ability could impact both sport self-concept and physical activity levels of students. These studies, although few, add additional support to the underlying theoretical basis for a BFLPE in the physical domain (Marsh et al., 2008a).

Despite their substantial contributions, these studies do have limitations; primarily with regard to measures of student ability in physical education. Individual student and class-average ability play a critical role in the theoretical framework of the BFLPE (Marsh et al., 2008a), yet research investigating frame of reference and a BFLPE in the physical domain has used fitness test scores (Marsh, 1993), skill-related fitness assessments measuring balance, speed, and coordination (Trautwein et al., 2008), and measures of student perceptions of ability (Margas, Fontayne, & Brunel, 2006). To our knowledge, only one study (Chanal et al., 2005), has used any measure of students' physical ability to execute a specific sport-related skill. In addition, none of the studies outlined above have been entirely framed in Marsh's multidimensional framework of physical self-concept or used domain-specific items from the Physical Self-Description Questionnaire (PSDQ, Marsh, 1996) to evaluate physical self-concept. According to Marsh and colleagues (2008a), in order to examine a BFLPE, it is essential to use ability measures that are comparable between individuals, classes, and schools in addition to reliable and valid measures of physical self-concept. Thus, there is a substantial need for more research that utilizes physical ability assessments and multidimensional measures of physical self-concept to investigate the BFLPE framework in physical education.

## **A BFLPE in Physical Education**

Social comparison is the foundation of a BFLPE (Marsh & Craven, 2002; Marsh et al., 2008a; Thijs et al., 2010) and the environment of physical education provides an optimal setting for students to make external social comparisons of ability to form their own self-perceptions. These social comparisons may provide an explanation for gender discrepancies in physical self-concept scores among physical education students. For instance, physical education classes frequently require students to perform sport-specific skills in front of one another and teachers often use ability grouping in their classes. In addition, physical education is considered a traditionally masculine subject where gender norms are reinforced (Bain, 2009; Connell, 2008; Kirk, 2003; Penney & Evans, 2002). Students often participate in sports that are considered to be traditionally male sports and if students conform to these traditional gender norms and males are viewed as more skilled in sport and physical education than girls (regardless of actual ability), girls will use this external comparison of ability to construct their physical self-concepts, specifically their sport self-concept, which will likely be lower than that of the boys who are viewed as more skilled. Thus, due to the sport-based nature of many physical education programs and conformity to traditional stereotypes, differences in physical self-concept may be a result of differences in the sport self-concepts of students. Conversely, girls enrolled in same-sex physical education classes are not exposed to males as objects for external comparison. It is possible that gender differences in sport self-concept among students enrolled in same-sex classes might be diminished when compared to those of their coeducational counterparts. Therefore, it is possible that the type of physical education class students are enrolled in (i.e., same-sex; coeducational) may moderate the BFLPE in physical education. Students' frame of



reference for sport self-concept and external social comparisons may be closely tied to the physical education environment and may be influenced by the gender make-up of the class.

The purpose of this study was to investigate a BFLPE and the moderating effects of class type among female students enrolled in same-sex and coed physical education classes. This study was based on extensive research examining a BFLPE for academic self-concept (Marsh et al., 2008a; Seaton, Marsh, & Craven, 2009; Seaton et al., 2011; Thijs et al., 2010) and previous studies investigating a BFLPE for activity-specific physical self-concept (Chanal et al., 2005) and sport self-concept (Trautwein et al., 2008). It was hypothesized that: a) individual ability would positively predict sport self-concept; b) class-level ability would negatively predict sport self-concept (also known as a BFLPE); and c) class structure (e.g. same sex, coeducational) would moderate the BFLPE in physical education. Specifically, same-sex classes would reduce the negative relationship between class ability and sport self-concept (i.e., BFLPE) when compared to co-educational classes.

## **Methods**

### **Quantitative Design**

Through their inquiry in the academic domain, Marsh and colleagues (Marsh et al., 2008) have concluded that a thorough investigation of a BFLPE requires: 1) a multilevel research design, 2) an objective measure of individual ability, 3) ability measures that are comparable across schools, 3) a valid measure of self-concept, and 4) tests of effects of school-average ability on self-concept after controlling for effects of individual ability. Unfortunately, this methodology poses several problems for investigations in a physical education setting.

As a general rule, multilevel analyses should have a minimum of 20 groups at the highest level (Kreft & De Leew, 1998). Often, this is not feasible and previous research has been unable

to meet these requirements (Chanal et al., 2005). In addition, only 19 states in the country currently require assessments in physical education and of those, only 14 require physical fitness assessments. Likewise, there are currently no states that require skill testing (NASPE & American Heart Association [AHA], 2010). Therefore, a standardized measure of student ability for physical education students that would be comparable across schools is not readily available.

Due to the limited amount of existing research and potential methodological considerations, this study was modeled after research conducted in the physical domain examining the BFLPE (Chanal et al., 2005) and frame of reference effects (Trautwein et al., 2008) as well as previous inquiry within the academic domain (Marsh et al., 2008a). Therefore, a quantitative, cross-sectional research design was used to examine the relationships among individual ability, class ability, class structure, and physical self-concept.

### **Participants and Setting**

Participants for this study were female students ( $N=97$ ) enrolled in required physical education classes at two middle schools in the Southeastern United States. Data were also collected from males in these classes and this data was used to calculate overall class means ( $N=153$ ). Students were enrolled in grade eight with a mean age of 13.19 years ( $SD=.44$ ). The students reported their ethnicity as African American (55.7%), Caucasian (24.3%), Multiracial (12.9%), or Other (7.1%).

Schools were selected based on similarities between the physical education curricula. Both schools used a traditional sport-based multi-activity curricular model and classes often began with warm-up activities focused on health and skill related components of fitness. One school consisted of same-sex PE classes ( $n=3$ ) that were taught by certified female PE teachers ( $n=3$ ). Often, these three classes were team-taught and held simultaneously. The other school

consisted of coeducational classes ( $n=4$ ) taught by a certified male PE teacher ( $n=1$ ). Overall, 42.5% of students ( $n=65$ ) were enrolled in same-sex classes and 57.5% ( $n=88$ ) were enrolled in coeducational classes.

## **Measures**

**PSDQ-S.** The sport self-concept subscale of the Physical Self-Description Questionnaire – Short (PSDQ-S) was used to measure self-concept in this study (Marsh, Martin, & Jackson, 2010). The sport self-concept subscale focuses on being athletic and good at sports and consists of the following three items: (a) I am good at most sports; (b) I have good sports skills; and (c) I play sports well. Each item was measured on a 6-point Likert scale ranging from 1 (not at all true) to 6 (very true). Sport self-concept represents a domain specific facet of physical self-concept that is closely related to skill tests such as the standing broad jump and Underkoffler softball throw for distance. Items from the PSDQ-S have demonstrated good reliability, test-retest stability over both short and long term, a well-defined factor structure that is invariant over gender, and both convergent and discriminant validity (Marsh et al., 2010) (See Appendix B).

**Standing broad jump.** The standing broad jump is a physical ability assessment designed to measure lower body muscular power and strength. This test has been validated for children as young as six through college-age and reliability coefficients ranging from .83-.99 have been reported (Miller, 2010; Reiman & Manske, 2009; Ruiz et al., 2011). In addition, the standing broad jump has demonstrated strong correlations with the 1RM squat ( $r=.805$ ) (Miller, 2010) and multiple lower body ( $r=.83-.86$ ) and upper body ( $r=.69-.85$ ) muscular strength tests (Castro-Pinero, Artero, & Espana-Romero, 2010). In this assessment, participants are allowed approximately five minutes of warm-up attempts before completing three trials. Participants are directed to jump as far forward as possible along a tape measure that is fixed to the floor. The

distance of each jump from the baseline to the heel of the closest foot to the start line is recorded to the nearest quarter-inch. The criterion score is the average of three trials (Miller, 2010). Norms for the standing broad jump are reported in Table 3.1.

**Underkoffler softball throw for distance.** The Underkoffler softball throw for distance is intended to measure softball ability and upper body muscular power and strength. This test has demonstrated good reliability ( $r=.95$ ) and validity ( $r=.63-.81$ ) among adolescent females (Collins & Hodges, 1978; Reiman & Manske, 2009). Previous research has verified that the Underkoffler Softball Throw is correlated with the modified pull up ( $r=.71$ ) and push up ( $r=.63$ ) tests of upper body strength in adults (Negrete, Hanney, Kolber, Davies, & Riemann, 2011). In this assessment, participants are allowed to complete four sub-maximal-maximal warm-up throws (25%-100% effort) before attempting three throws for maximum distance. Each participant then completes three trials consisting of three maximal throws. The criterion score is the distance of the farthest of the nine throws, measured to the nearest foot from the point where the ball first lands (Collins & Hodges, 1978; Negrete et al., 2011; Reiman & Manske, 2009). Norms for the Underkoffler softball throw for distance are not currently available.

Table 3.1. Normative scores on the standing broad jump for females aged 11-14 (Miller, 2010).

Percentile	Age			
	11	12	13	14
95	72"	74"	77"	80"
75	64"	66"	69"	71"
50	59"	60"	63"	64"
25	52"	54"	57"	58"
5	44"	46"	48"	48"

## **Procedures**

Permission to conduct this study was obtained by the University Institutional Review Board prior to data collection. In addition, students and parents were provided a full description of study procedures and child assent/parent consent was collected prior to participation.

Approximately 169 students were recruited to take part in the study and students who did not provide assent/consent forms were not allowed to participate (10.46 %,  $n=16$ ). All students were assigned identification numbers to ensure confidentiality.

## **Data Collection**

Data collection took place over three class periods. Participants first completed questionnaires containing demographic questions and the PSDQ-S (Marsh et al., 2010). Surveys took approximately 30 minutes to complete. Second, students completed two physical ability assessments; the standing broad jump and Underkoffler softball throw for distance. The physical ability assessments were administered by the primary researcher and the physical education teachers for each class. Each test was completed in one class period and took approximately 50 minutes to complete.

## **Data Analysis**

Data were initially screened for outliers. Reliability coefficients, descriptive statistics, and simple correlations were then calculated using SPSS statistical software. Hierarchical regression analysis was used to test Hypotheses 1 and 2. Specifically, girls' individual standing broad jump and softball throw scores were standardized and entered into the first block representing individual physical ability predictors. The standing broad jump and softball throw means for each class were calculated and assigned to individual students within their respective class. Class mean scores for standing broad jump performance and the softball throw were then

standardized and entered in the second block representing class ability predictors. The outcome measure was sport self-concept.

A second hierarchical multiple linear regression was conducted to investigate Hypothesis 3 (i.e. class structure will moderate the BFLPE in physical education) (Aguinis, 2004).

Standardized scores were used again for class ability variables, softball throw (CST) and class standing broad jump (CLJ), and a dichotomous variable was created for the categorical variable class type (CT) (e.g. coed=1, same sex=0) (Aiken & West, 1991; Aguinis 2004). CST, CLJ, and CT were first entered as predictors in Block 1, with sport self-concept as the outcome variable. Two product terms (CST X CT; CLJ X CT) were created and entered into Block 2 (Aiken & West, 1991; Aguinis, 2004). Significant interaction terms were used to determine if CT moderated the relationships between the CST, CLJ, and sport self-concept.

## Results

### Descriptive Statistics and Simple Correlations

The Cronbach's reliability coefficient for sport self-concept was .94, representing excellent inter-item correlation. Means, standard deviations, and simple correlations for all variables are reported in Table 3.2.

Table 3.2. Descriptive Statistics and Simple Correlations Among Variables.

Variable	1	2	3	4	5	<i>M</i>	<i>SD</i>
1 SSC						3.98	1.53
2 LJ	0.07					48.62	9.94
3 ST	0.29**	0.16				682.82	232.79
4 CLJ	-0.10	0.07	0.03			52.22	4.17
5 CST	-0.03	0.02	0.25*	0.71**		861.39	85.70

*Note.* SSC = sport self-concept; LJ = standing long jump; ST = Underkoffler Softball Throw; CLJ = class-level long jump mean including same sex and coed classes; CST = class-level Underkoffler Softball Throw mean including same sex and coed classes. \*  $p < .05$ ; \*\*  $p < .01$ .

The mean score for sport self-concept was above the mid-point of the scale. The mean scores for the standing broad jump and the class standing broad jump were equivalent to the 5<sup>th</sup> percentile for thirteen year-old adolescent females (See Table 3.1). The broad jump and softball throw mean scores for each of the seven classes are presented in Table 3.3. Classes 1 – 4 were coed and classes 5 – 7 were all girls (i.e., same-sex). Relationships among variables were initially investigated by testing bivariate correlations. There was a moderate-to-strong positive correlation between CST and CLJ. There were small-to-moderate positive correlations between sport self-concept and individual Underkoffler softball throw and the individual Underkoffler softball throw and class Underkoffler softball throw.

Table 3.3. Class Average Scores of Same Sex and Coed Classes.

Class	CLJ <i>M</i>	CST <i>M</i>	Type	Girls	Boys	Total
Class 1	53.88	831.48	Coed	7	26	33
Class 2	53.85	886.45	Coed	10	9	19
Class 3	59.28	966.00	Coed	9	10	19
Class 4	59.01	1052.32	Coed	6	11	17
Class 5	49.72	926.13	SS	18	0	18
Class 6	46.13	746.78	SS	20	0	20
Class 7	53.28	824.31	SS	27	0	27

Note. CLJ = class long jump mean; CST = class Underkoffler Softball Throw; Coed = coed classes; SS = same sex classes; Girls *n*= 97; Boys *n*= 56; total *N*= 153.

### **BFLPE Hierarchical Regression Analysis**

Results from the BFLPE hierarchical regression analysis are presented in Table 3.4. Results provided partial support for Hypothesis 1 and 2. Examination of Block 1 revealed that the Underkoffler softball throw for distance was the only individual ability predictor of sport self-concept ( $\beta = .25$ ). Individual standing broad jump scores did not appear to be related to sport

self-concept ( $\beta = .03$ ). Examination of Block 2 revealed partial support for a BFLPE. Specifically, the CST had a negative relationship ( $\beta = -.34$ ) with reports of sport self-concept, suggesting a BFLPE. Although CLJ only bordered on significance ( $\beta = -.29, p = .10$ ) as a predictor of sport self-concept, it is possible that this effect would be more prominent with a larger sample size. Overall, individual measures of ability accounted for 6% of the variance in sport self-concept and class measures of ability accounted for 5% of the variance in sport self-concept.

Table 3.4. Hierarchical Regression Results for Big Fish Little Pond Effect.

Sport Self Concept					
Predictor	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>
Block 1					.06
LJ	.03	.16	0.21	.83	
ST	.25	.17	2.21	.03	
Block 2					.05
CLJ	-.29	.25	-1.67	.10	
CST	-.34	.26	-2.04	.04	

### Moderation Analysis

The overall regression model evaluating the moderation effects of CT on the relationship between CST, CLJ, and sport self-concept was not significant ( $F = .94, p = .45$ ). Furthermore, there were no significant interaction effects ( $F = .72, p = .61$ ). Thus, results indicated that CT did not moderate the relationship between CST, CLJ and sport self-concept in this study.

### Discussion



Quality physical education is designed to educate the whole child, which includes positively influencing aspects of the affective domain such as self-esteem (NASPE, 2011). However, according to the BFLPE framework, the structure of the physical education environment can also negatively influence physical self-concept by facilitating social comparisons of ability among students (Marsh & Craven, 2002; Marsh et al., 2008a, 2008b; Thijs et al., 2010). Therefore, this study was designed to investigate a BFLPE for sport self-concept among adolescent females in physical education. It was hypothesized that: (a) individual ability would demonstrate a significant positive relationship with sport self-concept; (b) overall class ability would demonstrate a significant negative relationship with sport self-concept (also known as a BFLPE); and (c) class structure (e.g. same sex, coed) would moderate the BFLPE in physical education. It was theorized that same-sex classes would reduce a BFLPE when compared to coed classes because female students would be less likely to use males as targets for social comparisons of ability.

A primary theoretical prediction of the BFLPE is that domain-specific student ability will predict domain-specific self-concept (Marsh et al., 2008a) and previous research has provided evidence for this effect in the physical domain ( $\beta = .40 - .59$ ) (Chanal et al., 2005; Trautwein et al., 2008). Results from this study are similar and indicate that students' performance on the Underkoffler softball throw for distance positively predicted sport self-concept ( $\beta = .25$ ). However, individual student performance on the standing broad jump did not predict sport self-concept ( $\beta = .03$ ), therefore there was only partial support for Hypothesis 1. It is likely that the Underkoffler softball throw for distance was a significant predictor while the standing broad jump was not due to the nature of the skills tests. The softball throw for distance is directly transferable to a specific sport and measures a very sport-specific skill, and is therefore closely

related to sport self-concept. On the other hand, the standing broad jump assesses a skill-related component of fitness that is applicable not only to sport, but to the strength, endurance, and coordination components of physical self-concept. Therefore, future research should examine the potential for the standing broad jump to positively predict additional components of physical self-concept.

Results of this study also provide partial support for Hypothesis 2, which stated that class ability would negatively predict sport self-concept. The class-level performance on the softball throw did negatively predict sport self-concept ( $\beta = -.34$ ), providing some evidence of a BFLPE in the physical education classes included in this study. These results are comparable to previous research in the physical domain that has identified similar associations ( $\beta = -.39$  -  $-.68$ ) between physical ability and physical self-concept in gymnastics and fitness-based contexts (Chanal et al., 2005; Trautwein et al., 2008). Although the class-level performance on the standing broad jump did not negatively predict sport self-concept, it bordered on significance ( $\beta = -.29$ ). It is possible that class performance on the standing broad jump may negatively influence other components of physical self-concept (e.g. strength, endurance, coordination), therefore, future research should include additional components of physical self-concept in order to have a better overall picture of how class-level ability may influence physical self-concept. Considering the multidimensional framework of physical self-concept, these results are not necessarily surprising. For example, performance on a sport-specific skill, overall fitness, and skill-related components of fitness may contribute to a student's overall perception of his or her ability, much in the same way that perceptions of sporting ability, health, strength, endurance, and flexibility all contribute to an individual's overall physical self-concept. Therefore, future research should

examine how multiple physical ability assessments may be related to the various components of physical self-concept.

Although results only partially support Hypothesis 1 and 2, these findings do make a significant contribution to existing literature. These results provide additional support to the emerging evidence for a BFLPE in physical education. In addition, a considerable strength of this study is that it uses a sport-specific measure of upper body physical ability and a valid and reliable measure of lower body physical ability in combination with domain specific physical self-concept measures to investigate a BFLPE. These findings provide additional support for a BFLPE in physical education and contribute to the robustness of the BFLPE framework for self-concept development (Marsh et al., 2008b; Nagengast & Marsh, 2012). Critics of the BFLPE framework emphasize the importance of examining contextual factors that contribute to the BFLPE (Dai & Rinn, 2008) yet identifying specific individual or situational moderators of the BFLPE has been somewhat difficult (Marsh et al., 2008a; Seaton et al., 2010; Seaton et al., 2011). For example, a preference for a cooperative learning environment has been identified to enlarge a BFLPE in the academic domain, yet a competitive orientation has not been identified a statistically significant moderator (Seaton et al., 2010). Follow-up research has been unable to replicate findings that a BFLPE is enhanced based on cooperative orientations (Seaton et al., 2011). Similar results have been reported for individual ability, which has been suggested to influence the size and direction of a BFLPE (Seaton et al., 2010; Seaton et al., 2011). Further investigation has indicated that individual ability does not moderate the BFLPE (Seaton et al., 2011). In addition, several motivational constructs (e.g. intrinsic motivation, self-efficacy), which were originally hypothesized to be moderators of a BFLPE, have consistently demonstrated no moderation effects (Seaton et al., 2010; Seaton et al., 2011). Seaton and

colleagues have examined 67 different potential moderators and reported that none of the constructs examined moderate a BFLPE (Seaton et al., 2011). As a result, researchers have emphasized the importance of examining environmental variables such as forced social comparisons and frame of reference in the BFLPE (Seaton et al., 2008; Seaton et al., 2010; Seaton et al., 2011). Therefore, a second major contribution of this research was the investigation of class type as a potential moderator of a BFLPE for adolescent females in physical education.

Contrary to Hypothesis 3, results did not indicate that class structure (e.g. same sex, coed) moderated the BFLPE in physical education. It was hypothesized that female students in coed physical education classes would experience forced social comparisons with male classmates, who may be perceived as more skilled and that these social comparisons would negatively impact sport self-concept. Females enrolled in same-sex classes are not subjected to this external social comparison of ability and it was thought that controlling for class type would diminish a BFLPE for these students, yet results do not support this hypothesis. Previous research investigating individual-level comparisons in the academic domain has suggested that students tend to choose classmates with higher ability as individual-level comparison choices and that these choices sometimes have positive effects on achievement, which could in turn positively influence self-concept (Blanton, Buunk, Gibbons, & Kuyper 1999; Huguet et al., 2009; Seaton et al., 2008). However, higher school-average and class-average ability results in a BFLPE and consistently impacts individual students' self-concept negatively (Huguet et al., 2009; Marsh et al., 2008b; Nagengast & Marsh, 2012; Seaton et al., 2011). Therefore, individual, class-level, and school-level comparisons of ability can exist simultaneously within a BFLPE (Huguet et al., 2009; Marsh et al., 2008b; Seaton et al., 2008). It is possible that class type did not moderate a BFLPE due to the sample size and low power of the statistical analysis. However, it is also

possible that the girls in these coed classes did not choose male classmates as reference points for ability comparisons. These results are similar to those of previous work examining social comparison effects on fitness test scores, which indicated that students compare themselves to others of the same gender (Marsh, 1993). On the other hand, if the girls did chose male students as targets for comparison, the effects may not have been strictly negative. In other words, outperforming male targets might have enhanced girls' physical self-concept. These results contribute to previous research suggesting that individual and generalized social comparisons of ability can exist simultaneously (Huguet et al., 2009; Marsh et al., 2008b).

Results of the current study do not provide evidence that adolescent girls in coed classes are at an increased risk of experiencing a BFLPE. Instead, it is likely that a BFLPE may be a result of one's individual standing in her class or school (Huguet et al., 2009; Marsh et al., 2008b; Nagenast & Marsh, 2012; Seaton et al., 2011) and girls in same-sex classes are still at risk for making social comparisons that result in a BFLPE. Although students are using class-level comparisons, the class type may not play a significant role as previously hypothesized because more generalized comparisons are made (Marsh et al., 2008b). Students may take the overall ability of their classes into consideration over that of individual classmates, making gender less relevant.

Conversely, generalized comparisons may coexist with individual comparisons (Huguet et al., 2009; Marsh et al., 2008b). For example, female students in coed classes may not choose to compare themselves to male students and instead target classmates of the same gender. Second, students in both same-sex and coed classes may opt to compare themselves to classmates with higher ability, despite gender. Regardless of comparison-level choice, it is important for physical educators to be aware that there is potential for a BFLPE in physical

education classes and that all students have an equal chance of having their physical self-concept negatively influenced, regardless of ability level (Seaton et al., 2011). Future research investigating a BFLPE in physical education should focus on the comparison process and comparison-level choices (Huguet et al., 2009; Seaton et al., 2010; Marsh et al., 2008b).

Results of this study also highlight the role social comparison within a BFLPE plays in physical self-concept development among adolescent females (Huguet et al., 2009; Marsh et al., 2008b; Seaton et al., 2010). Specifically, these results suggest that generalized social comparison effects, which are implied within the BFLPE framework, can negatively impact physical self-concept among girls in physical education, regardless of class type. The physical education environment is unlike many traditional school subjects and often emphasizes competition, requires students to demonstrate their skills in front of others, and promotes social comparisons of physical ability. In the case of a BFLPE where social comparison effects are present, students' sport self-concept may suffer. BFLPE researchers have suggested that teachers in the academic domain should deemphasize competition and focus instead on personal improvement to counteract possible social comparison effects in the classroom (Liem, Marsh, Martin, McInerney, & Yeung, 2013). Although competition is often perceived negatively by students in physical education (Carlson, 1995; Ntoumanis, Pensgaard, Martin, & Pipe, 2004), some students enjoy competition and it is unlikely that the elimination of competitive activities would be successful. Instead, teachers should structure competitive activities in ways that address a broad range of ability levels and allow all students to be successful. In addition, teachers need to consider how students are grouped by ability and avoid creating scenarios where low-skilled students are constantly competing against high-skilled classmates (Rink, 2013).

In physical education, students are often asked to display their bodies and physical abilities in front of other students. Students are frequently grouped by ability and social comparisons are sometimes encouraged. Often, the best “athletes” in class are pointed out for their achievements and rewarded based on innate ability instead of skill mastery, improvement, or fair play. Teachers should keep in mind that all students are subject to negative effects from a BFLPE (Seaton et al., 2011) and create a mastery climate that focuses on personal improvement instead of innate ability (Solmon, 2003; Rink, 2013). Physical educators can use this information to create a more positive experience for all students. During adolescence, student enjoyment in physical education begins to decline (Subramaniam & Silverman, 2007), which is sometimes a result of feeling unsuccessful in physical education (Carlson, 1995; Ntoumanis et al., 2004). If students are placed in situations that facilitate social comparison and feelings of incompetence, their physical self-concepts will be negatively impacted. Thus, teachers should discourage student engagement in social comparison (Solmon, 2003) to avoid potential negative consequences of a BFLPE.

In conclusion, this research highlights a BFLPE for students in physical education and indicates that girls are susceptible to a BFLPE for sport self-concept regardless of class type. Teachers should keep in mind that all students are susceptible to a BFLPE and avoid emphasizing social comparison of ability in their classes. Instead, a focus on personal improvement and individual success can potentially reduce negative effects of social comparison on students’ physical self-concept. Despite the contributions of this study, future research should continue to investigate a BFLPE and potential moderators of a BFLPE related to individual students, teacher characteristics, and contextual variables in the physical domain. Identifying possible methods to diminish a BFLPE can lead to interventions that may buffer against negative

influences of social comparisons of ability in physical education (Marsh et al., 2008b; Marsh et al., 2013).

Researchers should keep in mind that social comparison may not always have negative effects on achievement (Blanton et al., 1999; Huguet et al., 2009; Seaton et al., 2008) but may still negatively influence self-concept (Seaton et al., 2008) and continue to investigate whether class or student-level comparison choices play a greater role in the BFLPE framework (Blanton et al., 2009; Seaton et al., 2010). This study is not without limitations. The cross-sectional design and sample size limit the generalizability of these results. Likewise, there may be differences between class type which were not detected in this study due to low statistical power. This study also only examined one subdomain of physical self-concept. Future BFLPE research in physical education should include both male and female students in diverse settings and multiple physical education environments. In addition, future research would benefit from examining additional components of physical self-concept and how multiple measures of ability may impact each domain-specific area of physical self-concept. Finally, research investigating multiple schools and classes will be better suited to meet the methodological suggestions of multi-level modeling to investigate a BFLPE (Marsh et al., 2008a).



## **CHAPTER FOUR: SUMMARY AND CONCLUSIONS**

Quality physical education benefits students in several ways and can influence their emotional development, specifically their perceptions of competence, self-esteem, and self-concept (Bailey, 2009). Unfortunately, girls often become less engaged and involved in physical education as they grow older (Subramaniam & Silverman, 2007), therefore they may not be receiving the same positive emotional, physical, or cognitive benefits as their classmates. Likewise, girls consistently report lower physical self-concepts than males in physical education (Caglar, 2009; Schmalz & Davison, 2006). Taken together, these two trends are quite disturbing and put young girls at risk for detrimental effects of low physical self-concept such as body dissatisfaction, depression, or disordered eating (O'Dea & Abraham, 1999; Rosenblum & Lewis, 1999) in addition to negative consequences associated with physical inactivity like increased risk for obesity, heart disease, and diabetes (Centers for Disease Control and prevention [CDC], 2011). A positive physical self-concept is associated with participation in physical education and physical activity (Beasley & Garn, in press, Cumming et al., 2011), yet to date there has been only speculation as to why females report lower physical self-concepts than males in physical education and many suggest that traditional gender stereotypes are to blame (Caglar, 2009; Klomsten, Marsh, & Skaalvik, 2005; Schmalz & Davison, 2006). Therefore, the purpose of this dissertation was to investigate potential explanations for gender discrepancies in physical self-concept scores among physical education students. Specifically, the roles frame of reference, social comparison, and the physical education environment play in physical self-concept development among adolescent females was examined through quantitative and qualitative research designs.

The results of Chapter Two provide evidence that some girls in same-sex physical education classes perceive the coed environment as one where they experience pressures regarding their physical ability and appearance and where there is a perceived risk for emotional and physical harm. In addition, the role of competition in physical education received significant attention. Participants conformed to traditional gender norms and viewed males as the more aggressive and physically dominant gender. However, competition itself was not considered to be unpleasant and was desirable in appropriate levels and contexts. In addition, results supported that female physical education students may use multiple sources of information in the process of physical self-concept development. All of the participants perceived same-sex physical education as a setting where they were free from the negative experiences associated with coed classes.

Results of Chapter Three provide evidence that female students in both same-sex and coed physical education can experience a BFLPE and use social comparisons of physical ability to construct their physical self-concepts. Class type did not increase or decrease the BFLPE for these students, indicating that the girls in coed classes were not at an increased risk for experiencing negative consequences to their physical self-concept as a result of a BFLPE. Instead, results suggest these girls in physical education were susceptible to a BFLPE, regardless of class type. This study also highlights the importance of considering generalized and individual-level comparison targets as choices for social comparison for girls in physical education.

The overarching purpose of these two studies was to provide insight into possible explanations for gender discrepancies in physical self-concept scores among students in physical education. The context of physical education provided a rich setting for investigating gender, physical self-concept, and the physical education environment. Since the implementation of Title

IX, there has been continual debate regarding whether or not same-sex physical education is the answer to current issues that girls face in physical education, such as participation opportunities, interaction and engagement with the teacher, and overall enjoyment (Derry & Phillips, 2004; Hannon & Ratcliffe, 2007; Lirgg, 2006; Hills & Croston, 2012). Despite significant attention directed toward this issue, research has yet to draw any definitive conclusions regarding which type of class structure is considered to be more beneficial (Lirgg, 2006). Results of these two studies were no different, yet they do offer a unique perspective and highlight the importance of physical self-concept in physical education.

First, results provide evidence that young girls' physical self-concept is constructed in relation to the surrounding environment and that there is support for both the BFLPE and the I/E frame-of-reference theoretical frameworks for physical self-concept development in a physical education setting. Specifically, participants in the qualitative study outlined in Chapter Two identified four sources of information (direct observations of achievement, teachers' responses and comments, responses and comments from classmates, and responses and comments from others outside the class) for physical self-concept development in physical education. Not only do these findings support previous research (Skaalvik & Skaalvik, 2002), but they also indicate that social comparison effects can play a significant role in physical self-concept development. Evidence for social comparison effects was also supported by the results of the quantitative study, which identified a BFLPE for girls in both coed and same-sex classes. BFLPE researchers have suggested deeper investigation of internal and external comparison-level choices (Huguet et al., 2009; Marsh et al., 2008; Seaton, Marsh, & Craven, 2009), which was addressed in Chapter Two. Participants not only used internal comparisons of ability and achievement, but they also identified external sources for comparison such as friends, family, classmates, and other girls in

general. Previous research has suggested that individual and generalized social comparison effects can exist simultaneously when a BFLPE is present (Huguet et al., 2009; Marsh et al., 2008; Seaton, Marsh, Yeung, & Craven, 2011) and results of these two studies support this. In other words, students may choose particular students to use as comparison targets while at the same time taking the overall ability of their class, grade level, or school into consideration.

Physical educators must consider that female students in their classes are forming their physical self-concepts based on both individual and generalized comparisons. Girls experience significant external pressure to conform to feminine body ideals (Azzarito & Solmon, 2009), which often creates conflict with the activities and tasks that they are asked to perform in physical education. If teachers reinforce the dominant masculinity that is often present in physical education (Kirk, 2002, 2003), girls' perceived pressure to conform to traditional gender expectations may in turn be transferred to the physical education class. For example, when teachers only offer activities that girls feel are gender inappropriate or that put their bodies on display in conventionally masculine ways, some female students may evade participating. Likewise, if students are uncomfortable in required uniforms, they may refuse to dress out or even opt out of physical education altogether. Teachers should consider offering a variety of activities that students feel are appropriate for both genders and reevaluate providing traditional sports experiences like basketball, volleyball, or flag football. In addition, teachers may want to reconsider evaluating student participation based solely on wearing required uniforms and instead use more authentic forms of assessment that evaluate task mastery and student effort (Solmon, 2003; Wood, 2003). Finally, it is imperative that teachers deemphasize social comparison in their classes. Students not only compare with generalized others, but they also use individual social comparisons as a basis for their own physical self-concept. Emphasizing

personal improvement instead of innate athletic ability will aid in counteracting students' ability comparisons with peers (Moreno-Murcia, Hernandez, Vaillo, & Camacho, 2012). Second, consistent with previous findings (Azzarito & Solmon, 2006, 2009; Larsson, Fagrell, & Redelius, 2009; McKenzie, Prochaska, Sallis, & Lamaster, 2004), participants in the first study indicated that in coed physical education they were vulnerable to perceived pressures to conform to a gendered body, felt susceptible to the male gaze, and were exposed to negative consequences such as name-calling when participating in activities. Overall, there was the feeling that coed physical education put girls at risk for emotional or physical harm and that same-sex classes were a preferable alternative. The internalization of traditional gender ideals and an increased awareness of gender expectations influenced girls' participation, engagement, and enjoyment in coed physical education.

Interestingly, despite such negative perceptions of coed physical education, class type did not influence the BFLPE identified in either same-sex or coed classes. Although these findings were consistent with BFLPE research (Seaton, Marsh, & Craven, 2010; Seaton et al., 2011), they do provide a unique perspective in the ongoing debate of coed vs. same-sex physical education. Social comparison effects were evident in both class types, indicating that the atmosphere of the physical education was more important than the gender make-up of the class. From discussions with the girls in the first study, it was clear that their previous experiences in coed physical education often revolved around participation in traditionally gender-stereotyped activities that were dominated by the high-skilled males in the class. Many have argued that there is no right or wrong answer regarding whether students benefit more from coed or same-sex physical education and that teachers, the environment, and pedagogy are more important than class type (Kirk, 2003; Lirgg, 2006). Likewise, recent research has suggested that teachers can influence

the gendered culture of physical education by attempting to provide gender equity in their classes (Azzarito & Katzew, 2010; Azzarito & Solmon, 2006). Therefore, by striving to demonstrate an awareness of gender and working to provide equitable experiences for all students, teachers can create more positive experiences for girls in coed classes.

Third, results of the first study highlight how competition can greatly impact student perceptions of the physical education atmosphere. An acceptable level of competition, concern for safety, and enjoyment was emphasized. Although participants did ascribe to traditional gender beliefs and expressed feelings that males were aggressive and rough, they also felt that in an appropriate setting competition was desirable and enjoyable. It is essential that practitioners keep in mind that like class type, competition is not necessarily inappropriate for physical education. Instead, teachers can structure activities so that all students can be successful regardless of gender, skill level, or athletic ability. Teachers should also carefully consider ability and skill level when grouping students and avoid placing students in scenarios where they will be dominated by higher-skilled competitors (Rink, 2013). By doing so, physical educators may also avoid potential negative consequences associated with ability comparisons and a BFLPE in physical education.

In conclusion, results of these two studies fill an existing gap in the research examining the associations between physical self-concept, frame of reference, social comparison, the physical education environment, and gender in physical education. Future studies should continue this valuable line of research by investigating the multiple sources of information students in physical education use to construct their physical self-concepts. Identifying sources of information and comparison-level choices in the physical domain will contribute to existing BFLPE research and hopefully lead to intervention strategies to reduce the BFLPE in physical

education classes. Future research should also continue to examine female students' perceptions of the physical education environment and their experiences in physical education. Continued scholarship in this area will provide additional explanations for gender discrepancies in physical self-concept scores among students in physical education and aid in identifying methods to increase girls' engagement, enjoyment, and participation in physical education.

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## **APPENDIX A: EXTENDED REVIEW OF LITERATURE**

### **Physical Self-Concept and Gender in Physical Education: A Review of Past Research, Current Trends, and Future Directions**

Dramatic declines in physical activity levels and participation in physical education have contributed to an increase in overweight and obesity for children and adolescents (Cumming et al., 2011; United States Department of Health and Human Services [USDHHS], 2011). Regular physical activity engagement in exercise settings such as physical education can benefit students not only physically, but cognitively, emotionally, and socially as well (Bailey, 2009; USDHHS, 2011). Despite the benefits of physical activity, there is still a pressing need to motivate students to participate in physical education classes. Physical self-concept, an individual's perception of himself or herself within the physical domain (Marsh, 1990), is an intrinsic factor that can help explain student engagement in physical activity both in and out of physical education (Carlson, 1995; Welk & Joens-Matre, 2007). Positive physical self-concept is related to physical activity participation and both adoption and adherence (Crocker et al., 2003; Cumming et al., 2011; Dunton, Jamner, & Cooper, 2003; Marsh, Papaioannou, & Theodorakis, 2006a) and a multitude of other important outcomes such as increased happiness, intrinsic motivation, and physical performance and decreased depression and anxiety (Craven & Marsh, 2008; Crocker, Sabiston, Kowalski, McDonough, & Kowlaski, 2006; Schneider, Dunton, & Cooper, 2008).

Physical self-concept research has consistently identified gender differences across multiple physical activity settings including physical education, with females reporting lower physical self-concept than males (Asci, 2002; Caglar, 2009; Hagger, Biddle, & Wang, 2005; Marsh, Hey, Roche, & Perry, 1997; O'Dea & Abraham, 1999; Schmalz & Davison, 2006; Whitehead & Corbin, 1997). Although gender differences in physical self-concept are well documented, there is currently only speculation as to why these differences are so distinct within

physical education. Most researchers place the blame for these differences on Western society's gender stereotypes (Asci, 2002; Caglar, 2009; Crocker, Eklund, & Kowalski, 2000; Crocker et al., 2003; Klomsten, Marsh, & Skaalvik, 2005; Klomsten, Skaalvik, & Espenes, 2004; Schmalz & Davison, 2006). This is a reasonable conclusion considering that schools are complex social environments where gender stereotypes are reinforced and that traditionally masculine subjects such as physical education magnify differences between males and females (Bain, 2009; Connell, 2008; Kirk, 2003; Penney & Evans, 2002). Individuals define gender and evaluate themselves in relation to the social context (Ridgeway & Correll, 2004). Settings like physical education, which highlight gender and reinforce traditional societal beliefs, create an environment that consequently requires students to emphasize their own expressions of gender and behaviors (Penney & Evans, 2002).

While physical education should provide equal opportunities for all, regrettably “gender segregation has the tendency to re-emerge within the gym” (Larrson, Fagrell, & Redelius, 2009, p.14). As a result, physical education can influence physical self-concept in both positive and negative ways (Marsh, Asci, & Tomas, 2006a; Whitehead & Corbin, 1997). Simply accrediting gender differences in physical self-concept to gender stereotypes in physical education is likely a naive, inadequate explanation. The complete understanding of this phenomenon is far more complex. Investigating the relationships between gender and physical self-concept construction within the gendered environment of physical education can, however, provide new insight into methods to increase participation and physical education enjoyment for children and adolescents. Therefore, the purposes of this review are to document the emergence of physical self-concept as a stand-alone dimension of self-concept and examine the traditionally masculine environment of physical education as an explanation for gender differences in physical self-concept.

The first section of this paper provides an overview of the development of a multidimensional model of self-concept and the evolution of physical self-concept as a distinct construct worthy of investigation. In the second section, the development of physical self-concept research in physical education is examined. Also, similarities between gender construction and physical self-concept are outlined. In the third section, the traditionally masculine culture of physical education is analyzed in relation to how it may contribute to gender differences in physical self-concept. Finally, this paper concludes with a summary of the limitations of existing research, implications for practitioners, and suggestions for future research.

### **Overview of Self-Concept and Physical Self-Concept**

There has been controversy concerning the definition, structure, and measurement of self-concept (Marsh, 1990; Marsh, 2006; Shalveson, Hubner, & Stanton, 1976). Early research rarely utilized a consistent definition of self concept, which created inconsistent findings across the literature. There was also debate concerning whether self-concept had a unidimensional or multidimensional structure. Shalveson and Marsh (1976) argued that unidimensional self-concept was overly simplistic and did not capture the complex nature of the construct. There was also little empirical support or consistent measurement of unidimensional self-concept. In 1976, Shalveson and colleagues synthesized previous self-concept research in order to create a working definition and theoretical framework to unify future investigations (Shalveson et al., 1976). Marsh and Shalveson (1985) later revised this model, which is currently used in a variety of academic, physical activity, and social settings (Craven & Marsh, 2008; Marsh & Craven, 2006). The Marsh/Shalveson (1985) theoretical model broadly defines self-concept as a person's perception of himself/herself that is formed through interactions with and interpretations of the

surrounding environment (Marsh, 1990; Marsh & Shalveson, 1985; Shalveson et al., 1976). The Marsh/Shalveson model suggests that self-concept: (a) can be differentiated from other constructs (b) has a multifaceted and hierarchical structure; and (c) undergoes developmental changes (Marsh, 1990; Marsh & Shalveson, 1985; Shalveson et al., 1976).

### **Definition**

The Marsh/Shalveson (1985) definition of self-concept distinguishes between self-concept and self-esteem. Self-concept has often been described as the descriptive aspect of self-perception while self-esteem was deemed the evaluative aspect (Marsh & Shalveson, 1985). According to Shalveson et al.'s (1976) definition, self-concept is both evaluative and descriptive by relying on an individual's self-perceptions (reflective statements about the self) (Fox, 1997) in addition to the frame of reference with which he or she evaluates these perceptions. Therefore, in order to distinguish between self-concept and self-esteem in the Marsh/Shalveson (1985) model, self-esteem is considered the global component of self-concept (Marsh, 1990; Marsh & Shalveson, 1985; Shalveson et al., 1976).

Although closely related, self-concept should also be distinguished from competence, perceived competence, perceived ability, and self-efficacy. Competence refers to an individual's actual abilities/inabilities, effectiveness/ineffectiveness, and successes/failures (Elliot & Dweck, 2005; Schultheiss & Brunstein, 2005). Perceived competence can then be thought of as generalized self-statements regarding a person's competence. Accordingly, perceptions of ability are self-statements of ability applied to specific contexts (Fox, 1997). Self-efficacy, on the other hand, is an individual's personal belief about his or her ability and capability to succeed in a given task (Bandura, 1986). Based on these definitions, perceptions of competence and ability can be characterized as self-descriptive and cognitive evaluations of competence while self-

efficacy can be distinguished as self-evaluative and affective evaluations of competence. Perceptions and feelings of competence have been pinpointed as a “cornerstone of our self-worth” (Rhodewalt & Vohs, 2005, p.559) and self-efficacy is considered to act as a precursor to self-concept development (Bong & Skaalvik, 2003). Therefore, although each is a stand-alone component of the self, competence, perceived competence, perceived ability, and self-efficacy are all considered to be integral components of self-concept.

Prior to the development of the Shalveson et.al (1976) definition, terminology related to self-concept was inconsistent. Multiple definitions and a variety of terms related to the central constructs of the self resulted in confusion and conflict in related literature (Shalveson et al., 1976). Recent research has been effective at distinguishing between constructs; however, it should be noted that the terms self-worth and self-esteem are often used interchangeably (Fox, 1997).

## **Structure**

According to the Marsh/Shalveson (1985) theoretical model, self-concept has a multidimensional and hierarchal structure. In this model self-esteem (global self-concept) is divided into academic and nonacademic self-concepts. In the nonacademic domain, self-concept is further separated into social, emotional, and physical self-concept sub-domains (See Figure 1). Consequently, each sub-domain is considered to also have a multidimensional structure (Marsh, 1990; Marsh & Craven, 2006; Marsh & Shalveson, 1985). Later revisions of the original Shalveson et al. (1976) model determined that less emphasis should be placed on the hierarchal structure and more focus directed toward the multidimensionality and developmental aspects of self-concept (Marsh, 1990; Marsh, 2002; Marsh & O’Mara, 2008a; Marsh & Shalveson, 1985).

Currently, there is a substantial amount of support for the multifaceted nature of self-concept and it is inferred that global measures are not clear indicators of self-concept within a specific domain (Craven & Marsh, 2008; Marsh, 1990; Marsh & Craven, 2006; Marsh & O'Mara, 2008b; Marsh & Shalveson, 1985; Marsh, Trautwein, Ludtke, Koller, & Baumert, 2006b). Although global self-concept is not insignificant, it is no longer considered a useful tool for understanding the distinct dimensions of self-concept. Therefore, it is strongly suggested that researchers focus on the dimensions of self-concept most pertinent to their field (Craven & Marsh, 2008; Marsh, 1990; Marsh, 2002; Marsh & O'Mara, 2008a; Marsh & Craven, 2006; Marsh & Shalveson, 1985; Marsh, Trautwein, et al., 2006). For researchers in physical education, physical self-concept is the component of self-concept most applicable to understanding this construct within the complex physical and social atmosphere of physical education (Craven & Marsh, 2008; Marsh, 1990; Marsh & Craven, 2006; Marsh & O'Mara, 2008a; Marsh, Trautwein, et al., 2006; Marsh & Shalveson, 1985).

**Measurement of physical self-concept.** Although the majority of initial research utilizing the Marsh/Shalveson (1985) model of self-concept was related to the academic domain, there has been progress in the application of this model to various areas in the physical domain, such as physical education (Craven & Marsh, 2008; Marsh, 1999; Marsh, 2002; Marsh, 2006; Marsh & Craven, 2006; Shalveson et al., 1976). Physical self-concept refers to an individual's perception of himself or herself within the physical domain and is separated into two specific categories: physical ability and physical appearance (Marsh, 1990; Marsh, 1996; Marsh, 1999; Marsh, 2002; Marsh & Craven, 2006; Marsh & Shalveson, 1985; Peart, Marsh, & Richards, 2005; Shalveson et al., 1976).

Early exploration of the multidimensional structure of physical self-concept began with studies that used global multidimensional measures such as the Self-Description Questionnaire (SDQ) series of assessments (Jackson & Marsh, 1986; Marsh & Jackson, 1986; Marsh & Peart, 1988; Marsh & Redmayne, 1994). These assessments identify physical ability and physical appearance as components of physical self-concept (Marsh, 1997). The first studies to apply the Marsh/Shalveson (1985) model to a physical setting used the SDQ to examine self-concept in relation to athletic participation among female high school students and young women (Jackson & Marsh, 1986; Marsh & Jackson, 1986). Results indicated that for young women, athletic participation was related to physical ability self-concept (Jackson & Marsh, 1986; Marsh & Jackson, 1986).

The SDQ was then used to examine self-concept and its relationship to physical fitness (Marsh, 1993a; Marsh, 1993b; Marsh & Peart, 1988). It was determined that physical ability was moderately correlated with fitness (Marsh & Peart, 1988) and that multiple fitness indicators displayed moderate correlations with physical fitness self-concept (Marsh, 1993b). These studies concluded that specific components of physical fitness had unique relationships with physical fitness self-concept. In addition, physical fitness was not related to academic self-concept, indicating that physical self-concept is distinct from other self-concept dimensions (Marsh, 1993b). These early studies provided a basis for the multidimensionality and distinctiveness of physical self-concept (Marsh, 2002; Marsh, 2006). Although these investigations made a significant contribution to self-concept literature by providing evidence that physical self-concept is a distinct facet of self-concept, the use of global self-concept measures in combination with samples that consisted primarily of young female participants were major limitations.



As physical self-concept began to emerge as a separate and multidimensional component of self-concept, the need for measures to assess this construct apart from global self-concept became evident. Originally, investigations used global measures that often had only one or two physical scales, research was inconsistent, physical self-concept measures were unreliable, and there was a lack of a theoretical basis (Fox, 2000; Marsh, 1997). As a result, measures were developed using a construct validity approach and multidimensional theoretical basis in order to examine physical self-concept in more detail. These initial instruments were Richards' Physical Self-Concept Scales (RPSC) (As cited in Marsh, 1997), the Physical Self-Perception Profile (PSPP) (Fox, 1990; Fox & Corbin, 1989), and the Physical Self-Description Questionnaire (PSDQ) (Marsh, Richards, Johnson, Roche, & Tremayne, 1994).

The first of these new instruments, the RPSC, was developed based on the Marsh/Shalveson (1985) model of self-concept, previous self-concept research, and data from the SDQ series (As cited in Marsh, 1997). This instrument identified seven facets of physical self-concept: body build, appearance, health, physical competence, strength, action orientation, and overall physical satisfaction (As cited in Marsh, 1997). The RPSC was one of the first multidimensional physical self-concept instruments and is considered to be valid and reliable across gender and age groups (Richards & Marsh, 2005). In addition, this measure provided a basis for the development of alternative measures such as the PSPP and PSDQ.

Currently, the PSPP and PSDQ are considered to be valid and reliable and are the most widely used instruments in physical self-concept research (Fox, 2000; Marsh, Asci, et al., 2002 ; Sonstroem, 1998). The PSPP was developed using the Shalveson et al. (1976) model of self-concept, previous self-concept research, and content validation from a sample of university students (Fox & Corbin, 1989). This measure identified four multidimensional physical self-

concept scales and one global scale: sport, condition, body, strength, and global physical self-worth (Fox, 1990; Fox & Corbin, 1989). When the PSPP was initially developed, it was identified as the most valid and reliable physical self-concept instrument up to that point (Marsh, 1997). The PSPP was first used with university students and subsequent testing and revisions led to the creation of children's versions of the PSPP (PSPP-C) and The Children and Youth Physical Self-Perception Profile (CY-PSPP), both of which have been validated among children as young as eight years old and up to high school age (Fox, 2000; Hagger, Biddle, Chow, Stambulova, & Kavussanu, 2003; Hagger, et al., 2005; Jones, Polman, & Peters, 2009; Welk, Corbin, Dowell, & Harris, 1997; Welk & Eklund, 2005; Whitehead & Corbin, 1997). Since its original development, the PSPP and successive versions have been validated among a variety of cultures and populations (Fox, 2000; Hagger et al., 2003). The PSDQ and PSPP are highly correlated; however some researchers have reported that the PSPP has high internal correlations while the PSDQ has smaller measurement error (Marsh, 1997; Marsh, Asci, et al., 2002 ; Marsh et al., 1994). Therefore, Marsh and colleagues suggest that the PSDQ is the instrument best suited to examine physical self-concept (Marsh, 1997; Marsh, Asci, et al., 2002 ).

The PSDQ was developed in response to previous research that identified physical self-concept as a separate and multidimensional construct of self-concept (Jackson & Marsh, 1986; Marsh & Jackson, 1986; Marsh & Peart, 1988). The preliminary version of the PSDQ combined items from the SDQ II and Sutherland and Marsh's (1987) physical ability and self-description scale (Marsh & Redmayne, 1994). In contrast to previous investigations that only examined two sub-components of physical self-concept, this study examined six facets: endurance, balance, flexibility, strength, appearance, and general ability. This initial instrument examined the multidimensionality of physical self-concept using the Marsh/Shalveson model and in turn

provided support for each of the six components of physical self-concept (Marsh, 2002; Marsh, 2006; Marsh & Redmayne, 1994; Marsh & Sonstroem, 1995).

Following Marsh & Redmayne's (1994) identification of six components of physical self-concept, the initial version of the PSDQ was revised based on the Marsh/Shalveson theoretical model, the SDQ series of measures, and Marsh's (1993) study of physical fitness indicators (Marsh et al., 1994). The original instrument was reconstructed to identify nine physical self-concept scales and two global scales (Marsh et al., 1994). The final version of the PSDQ divided physical self-concept into two specific categories: physical ability and physical appearance, which were further separated into nine sub-categories (Marsh, 1996; Marsh, 1999; Marsh, 2002; Marsh & Craven, 2006; Marsh et al., 1994). Specifically, Marsh and colleagues suggested an individual's perception of his or her physical strength (e.g. "I am a physically strong person"), body fat (e.g. "I have too much weight on my body"), physical activity levels (e.g. "I do sports, exercise, dance, or other physical activities almost every day"), endurance (e.g. "I can run a long way without stopping"), sporting ability (e.g. "I am good at most sports"), physical coordination (e.g. "I am good at coordinated movements"), physical health (e.g. "I get sick a lot"), physical appearance (e.g. "I have a nice looking face"), and physical flexibility (e.g. "My body is flexible") all contribute to his or her overall physical self-concept (e.g. "Physically, I am happy with myself") (See Figure 1)(Marsh et al., 1994).

The PSDQ is a 70 item instrument that requires individuals to respond to declarative statements on true or false Likert scale. PSDQ construct validation has demonstrated that the items are closely related to the constructs being measured (Marsh, 1996; Marsh, 1997; Nigg, Norman, Rossi, & Benisovich, 2001). The PSDQ specifically has good reliability, test-retest stability over both short and long term, and a well-defined factor structure that is invariant over

gender (Marsh, 1997; Marsh, 2002; Peart et al., 2005). In addition, it has both convergent and discriminant validity when compared to three other physical self-concept instruments and external criteria (Marsh, 1997; Marsh, 2002; Peart et al., 2005).

Since the original development of the PSDQ, a short form of the instrument has been created (Marsh, Martin, & Jackson, 2010; Peart et al., 2005). The PSDQ-S condensed the 70-item PSDQ to 40 items and is considered to be psychometrically sound (Marsh et al., 2010; Peart et al., 2005). Since the development of the PSDQ and PSDQ-S, support for these physical self-concept measures and theoretical structure has since been established for a variety of populations, cultures, and age groups in various sport, exercise, and physical education settings (Dunton et al., 2006; Guerin, Marsh, & Famose, 2004; Marsh, 1996; Marsh, 1997; Marsh, 2002; Marsh, 2006; Marsh, Gerlach, Trautwein, Ludtke, & Brettschneider, 2007a; Marsh, Perry, Horsely, & Roche, 1995; Marsh & Sonstroem, 1995; Nigg et al., 2001).

The RPSC, PSPP, and PSDQ are all considered to have good construct validity. Although both the PSPP and PSDQ are widely used in physical self-concept research, it has been suggested that the PSDQ and PSDQ-S are the more reliable and valid instruments (Marsh, 1997; Marsh, Asci, et al., 2002 ; Marsh et al., 2010; Richards & Marsh, 2005). The PSPP is often reported to have high correlations between factors and this is considered to be a major limitation of the instrument (Marsh, Asci, et al., 2002 ; Richards & Marsh, 2005). The RPSC and PSDQ are psychometrically similar; however, the RPSC does not address all of the components identified in the PSDQ (Richards & Marsh, 2005). Therefore, the PSDQ has many advantages when compared to the RPSC and PSPP. Nonetheless, the PSDQ is not frequently used in physical education and researchers instead tend to choose shorter versions of the PSPP to examine physical self-concept among children (Hagger et al., 2005; Welk & Eklund, 2005). Although the

RPSC is a shorter instrument that addresses more components than the PSPP, it is still not as comprehensive as the PSDQ and PSDQ-S (Marsh et al., 2010; Richards & Marsh, 2005).

Considering recent support for the PSDQ-S (Marsh et al., 2010) and the suggestion that the PSDQ be used instead of the PSPP (Marsh, Asci, et al., 2002 ), it is likely that the shorter and more “child-friendly” PSDQ-S will become the instrument of choice in physical education research.

In summary, the RPSC, PSPP and PSDQ are considered valid, reliable, and established instruments in physical self-concept research. However, a major strength of the PSDQ is its ability to examine a wider range of physical self-concept dimensions while maintaining smaller correlations between factors. With emerging support for the PSDQ-S, researchers can now investigate a wider range of physical self-concept factors in a shorter amount of time and provide new and valuable insight into the physical self-concepts of children in physical education.

## **Development**

According to the Marsh/Shalveson (1985) model, self-concept should be examined from a developmental perspective (Marsh, 1990; Marsh & Shalveson, 1985; Shalveson et al., 1976), meaning that self-concept evolves as children grow and develop. Children exhibit a multidimensional self-concept at a young age (Marsh & Craven, 2006; Marsh, Ellis, & Craven, 2002b; Marsh, Debus, & Bornholt, 2008); however, the multifaceted nature of self-concept becomes more distinct as children grow and mature cognitively (Marsh 1990; Marsh, 2002; Marsh & Craven, 2006; Marsh & Shalveson, 1985). As self-concept becomes more multidimensional, the hierarchy weakens and self-concept becomes increasingly more domain specific (Marsh, 1985; Marsh & Shalveson, 1985). There is strong support that as children age, physical self-concept also becomes more differentiated and multidimensional (Marsh 1993b;

Marsh et al., 2005; Marsh, Hau, et al., 2007); indicating that physical self-concept is also best studied from a developmental perspective (Marsh, 1993b; Marsh, 2002b; Marsh, 2006; Marsh, et al., 2007a; Marsh, Hau, Sung, & Yu, 2007b).

Not only is there more distinction among the specific domains of self-concept as children mature but self-concept also becomes more realistic. For instance, young children often have very high self-concepts that do not reflect actual ability. As children transition from preadolescence to adolescence, their self-concepts often decrease and become more accurate. Following adolescence, self-concept then begins to stabilize (Marsh & Craven, 2006; Marsh, Craven, & Debus, 1998; Marsh, Ellis, et al., 2002 ; Marsh & Shalveson, 1985). The same developmental shift occurs with physical self-concept, which undergoes a decrease during adolescence and then becomes increasingly more established with age (Marsh et al., 1998). In physical education, physical self-concept maintains the multidimensional structure that has been recognized in other physical settings (Dunton et al., 2006; Gheris, Kress, & Swalm, 2010; Marsh, Hau, et al., 2007) and it is suggested that in this context physical self-concept should also be examined from a developmental perspective (Marsh, Hau, et al., 2007 ).

**Frame of reference.** An individual's frame of reference plays an important role in the development of global and physical self-concept (Marsh & Craven, 2002). There is support for frame of reference effects and the development of physical self-concept in physical education (Gheris et al., 2010; Trautwein, Gerlach, & Ludtke, 2008). The Internal/External Frame-of-Reference (I/E) Model provides a framework for understanding the development of self-concept in relation to internal and external comparison (Craven & Marsh, 2006; Marsh, 1990; Marsh & Craven, 2002). First of all, internal comparisons of ability within each domain can impact self-concept in other domains. For example, a student may have average math ability and above

average physical ability. The student will in turn use this internal comparison of ability in two separate domains to construct self-concepts in each area (Marsh & Craven, 2006; Marsh et al., 1997). In a physical setting, students may compare current performance on a specific task with their own previous performances (Gheris et al., 2010). As a result, the construction of a positive physical self-concept is part of an internal self-evaluation process.

In combination with internal evaluations, external comparisons influence the development of physical self-concept. External comparison refers to when individuals use social comparison to form self-concepts. As children grow older, external comparison increasingly plays a larger role in self-concept development (Marsh, 1993b; Marsh, 2006; Marsh & Craven, 2002; Marsh, et al., 2008b) and the context of physical education provides a complex setting to negotiate the development of physical self-concept. For instance, physical education classrooms often have children exhibiting skills in a social setting. Such a public display of ability provides an optimal scenario for external social comparisons (Gheris et al., 2010; Trautwein et al., 2008).

In order to explain social comparison effects on self-concept development Marsh and colleagues developed the Big-Fish-Little-Pond Effect (BFLPE) theory (Marsh & Craven, 2002; Marsh, Seaton, Trautwein, Ludtke, Hau, O'Mara, & Craven, 2008b). The basic premise of the BFLPE is that students with high ability will have a lower self-concept when surrounded by others with high average ability. Conversely, students with average ability will have a higher self-concept when surrounded by others with low average ability (Chanal, Marsh, Sarrazin, & Bois, 2005; Marsh, Seaton, et al., 2008). There is support for the BFLPE for physical self-concept in physical education (Chanal et al., 2005; Marsh, 1993a; Marsh, 2002; Marsh, 2006; Marsh, et al., 1997; Marsh & Peart, 1988; Trautwein et al., 2008). For instance, in the Chanal et al. (2005) study, gymnastics self-concept was influenced by the performance of others. When

students were surrounded by classmates with superior gymnastics skills, they reported a lower self-concept for this area (Chanal et al., 2005). In addition, Marsh (1993a) has also reported that social comparisons of running ability among students impacted their own self-perceptions in the physical education classroom. While support for the I/E Frame-of-Reference Model and the BFLPE in physical education does exist, it is sparse and conclusions from this research are limited. Physical education is an ideal setting for internal comparisons of performance as well as social comparisons of ability. Therefore, there is a substantial need for more study of how a child's frame of reference and social context influence the development of a positive physical self-concept in physical education.

**Reciprocal effects model.** In combination with frame of reference effects, there is a connection between outcomes and physical self-concept development. Marsh and colleagues have described a Reciprocal Effects Model (REM) to explain this relationship (Craven & Marsh, 2008; Guay, Marsh, & Bovin, 2003; Marsh & Craven, 2002; Marsh & Craven, 2006; Marsh & Perry, 2005). For example, Marsh & O'Mara (2008b) provided evidence to support a positive reciprocal relationship between academic self-concept, school grades, and educational attainment. Academic self-concept was demonstrated to be consistently related to school grades and educational attainment, yet evidence supporting a REM with global self-esteem was weak and inconsistent. Therefore, this investigation also indicates that a REM is also domain specific (Marsh & O'Mara, 2008b).

In physical education, there is support for the REM between physical self-concept and physical activity levels, exercise behaviors, skill development, and performance. For example, students with higher physical self-concepts are more active and exhibit positive exercise behaviors (Marsh, Papaioannou, et al., 2006; Trautwein et al., 2008; Welk & Eklund, 2005). As a



result, when students are more physically active their physical self-concepts will likely be higher. The REM is also associated with skill development in physical education. When physical self-concept development is supported, gains in skill performance are more likely to be maintained. As a result, favorable skill performances positively impact physical self-concept (Peart et al., 2005). In accordance with the REM, when students are satisfied with their skills and personal performance their physical self-concept will be more positive- which becomes a tool used to improve performance (Craven & Marsh, 2008; Marsh & Craven, 2002; Marsh et al., 2005).

A major goal of physical education is to increase children's physical activity levels while providing them opportunities to develop skills that will enable them to be physically active for the rest of their lives (Ennis, 2011). If teachers support the development of a positive physical self-concept, they can in turn promote skill development and physical activity. Likewise, by fostering skill development and providing opportunities for physical activity, teachers can encourage positive physical self-concept development among their students. An adequate amount of support for the REM in physical education exists, yet there is still a need for studies to explore this model and justify the importance of positive physical self-concept development in physical education.

### **Physical Self-Concept, Physical Education, and Gender Construction**

#### **Research on Physical Self-Concept in Physical Education**

Past research has provided a body of evidence to support physical self-concept as a stand-alone and multidimensional construct of self-concept. As a result, investigations in a variety of physical activity and sport settings, including physical education, have utilized this framework in order to understand self-concept within the physical domain. Unfortunately, inquiry in physical education based upon Marsh' model of physical self-concept has been limited, perhaps due to the

length of the PSDQ. The majority of investigation in this area has used various versions of the PSPP and has been based on Fox's physical self-perception framework (Goni & Zulaika, 2000; Hagger et al., 2005; Whitehead & Corbin, 1997). Findings from this research are however, consistent with studies utilizing the PSDQ and the Marsh/Shalveson (1985) model of physical self-concept. In general, physical self-concept research in physical education has been related to issues of curriculum, physical self-concept interventions, and gender differences in physical self-concept.

For instance, investigations based on both theoretical frameworks have concluded that the physical education curriculum can influence physical self-concept. Specifically, when the curriculum attempts to improve physical self-concept, it can positively influence the physical self-concepts of students ranging from elementary to high school (Daley & Buchanan, 1999; Gheris et al., 2010; Goni & Zulaika, 2000). In addition, programs that place emphasis on participation in cooperative activities instead of competition are more likely to improve physical self-concept sub-domains for females (Daley & Buchanan 1999; Marsh & Peart, 1988). Research with the PSDQ has demonstrated that curriculums such as adventure or fitness education that focus on improving self-concept and fitness simultaneously may positively affect physical self-concept (Gheris et al., 2010; Marsh & Peart, 1988).

There has also been investigation of the ability of school-based fitness interventions to improve physical self-concept of sedentary high school females. These interventions were not however, as successful as hypothesized. Physical self-concept, measured with the PSDQ, was only affected when there were increases in physical activity levels in conjunction with improvements in fitness that resulted in a reduction of body fat (Dunton et al., 2006; Schneider et al., 2008). Despite issues with research design, the major contribution of past research related to

curriculum and physical self-concept interventions with children is the notion that a positive physical self-concept can be developed and maintained as a result of external influences (Whitehead & Corbin, 1997).

Physical self-concept research utilizing the Marsh/Shalveson (1985) framework that focuses solely on physical education is sparse. The studies that have been done either use only global measures of self-concept (Goni & Zulaika, 2000) or include only female participants (Dunton et al., 2006; Marsh & Peart, 1988; Schneider, et al., 2008). As a result, there are major gaps in the literature examining physical self-concept among students enrolled in physical education. Regardless of instrumentation or theoretical framework, past physical self-concept research does provide support for the restructuring of the traditionally masculine curriculum of physical education in order to positively influence physical self-concept (Azzarito & Solmon, 2009; Azzarito & Katzew, 2010).

### **Gender Effects in Physical Education**

Although physical self-concept research limited to physical education utilizing the Marsh/Shalveson (1985) model is incomplete, there have been substantial investigations related to the presence of gender differences in physical self-concept. Specifically, females tend to report a lower physical self-concept than males and these distinct gender differences are consistently demonstrated in studies based on both the Marsh/Shalveson (1985) and Fox (1990) models of physical self-concept (Asci, 2002; Caglar, 2009; Hagger et al., 2005; Hagger, Stevenson, Chatzisarantis, Gaspar, Ferreira, & Rave, 2009; Hayes, Crocker, & Kowalski, 1999; Jones et al., 2009; Marius, Claudia, Florina, & Densia, 2011; Marsh et al., 1997; Martin, Liem, Coffey, Martinez, Parker, Marsh, & Jackson, 2010; O'Dea & Abraham, 1999; Schmalz & Davison, 2006; Welk & Eklund, 1995; Whitehead & Corbin, 1997).

Studies utilizing the PSDQ have found that males typically score higher on overall measures of self-concept, domain specific areas such as physical self-concept, and specific sub-domains within physical self-concept. There is however, conflicting research regarding specifically in which sub-domains males score higher. For example, it has been reported that males in both high school and elementary school often score higher on the specific PSDQ subscales of health, coordination, physical activity, body fat, sports competence, global physical, appearance, strength, endurance, and global self-esteem (Klomsten et al., 2004). Others have reported that males score higher on all measures except appearance and self-esteem and the greatest differences are in sport competence, endurance, and strength (Caglar, 2009). Furthermore, some studies using the PSDQ state that females score higher on global physical self-concept items and males score higher on health self-concept items (Martin et al., 2010). There are also discrepancies among PSDQ studies with regard to flexibility. At least one study has documented that females report higher flexibility scores, although males tended to still rate themselves highly on this measure (Klomsten et al., 2004). Finally, some researchers have stated that when using a measure of global self-concept, males report a more positive overall self-concept related to physical appearance in general (O'Dea & Abraham, 1999). Investigations using the PSPP have reported similar findings (Asci, 2002; Biddle, Page, Ashford, & Jennings, 1993; Jones et al., 2009; O'Dea & Abraham, 1999; Welk & Eklund, 1997).

Similar to other physical settings, there are gender differences in physical self-concept scores in physical education. Typically, females in physical education report a lower physical self-concept and males tend to rate themselves higher in almost all subdomains on both the PSDQ and PSPP (Caglar, 2009; Biddle et al., 1993; Marsh, Papaioannou, et al., 2006; Welk & Eklund, 1997; Whitehead & Corbin, 1997). Consistent with conclusions of previous research in

sport and physical activity settings, it is generally accepted that distinct gender differences exist between students in physical education. However, where the differences lie within the construct of physical self-concept is currently unclear. In addition, there is little insight as to why these gender differences are so stable and limited research controlling for physical activity or skill levels. Many researchers have hypothesized about the impact of gender stereotypes (Asci, 2002; Caglar, 2009; Crocker et al., 2000; Crocker et al., 2003; Klomsten et al., 2004; Klomsten et al., 2005; Schmalz & Davison, 2006), yet there has been little to no investigation in this area.

Schools, specifically physical education classes, are often places where Western society's prominent gender stereotypes developed and reinforced (Bramham, 1999; Connell, 2008; Marsh & Byrne, 1991). While gender stereotypes are likely a contributing factor to physical self-concept differences between males and females in physical education, other factors such as the social construction of gender, social comparisons of ability, or how the body is put on display may also play a part. Considering the consistency of these gender differences documented in research and the gender-laden atmosphere of physical education, it is surprising that there has not been more exploration of gender differences in physical self-concept focused on physical education settings.

### **Gender Construction**

Gender is considered a central aspect of one's personal identity and encompasses attribute self-perceptions, gender identity, and gender stereotypes (Martin & Ruble, 2004; Martin, Ruble, & Szkrybalo, 2002; Tobin, Menon, Menon, Spatta, Hodges, & Perry, 2010). Attribute self-perceptions refer to a child's self-assignment of gender-related characteristics. In other words, it is the degree to which he or she describes himself or herself as more masculine, feminine, or androgynous. Historically, the self-assignment of gender characteristics has been

labeled as gender identity, but current research has deemed gender identity to be more complex (Bem, 1974; Burke & Tully, 1977, Zosuls, Miller, Ruble, Martin, & Fabes, 2011).

The current definition of gender identity is “the quality and strength of the cognitive connections that a person makes between the self and a gender category” (Tobin et al., 2010, p.607). Gender identity is more self-evaluative than the simple assignment of gender characteristics to oneself. It encompasses knowledge of one’s membership to a gender category, feelings of compatibility with this category, pressures felt to conform to this category, and feelings of superiority or inferiority associated with this group membership (Egan & Perry, 2001; Tobin et al., 2010).

Gender stereotypes are cultural beliefs of gender based on how a particular culture views the typical male or female and are socially-constructed beliefs that each will display certain characteristics and demonstrate particular behaviors assumed to be acceptable or unacceptable for each gender (Lips, 2005; Ridgeway, 2009; Ridgeway & Correll, 2004; Tobin et al., 2010). For example, in Western societies a “typical” male should exhibit more masculine qualities that tend to focus on action and violence. In contrast, a “typical” female should display more feminine qualities that focus on emotionality, properness, and supportiveness. Gender stereotypes are usually mutually exclusive standards that become guidelines for self-evaluation of gender, or the construction of a gender identity (Basow, 1992; Ridgeway, 2009). In summary, gender is not simply whether or not someone is male or female and is instead a multidimensional construct made up of attribute self-perceptions, gender identity, and gender stereotypes.

Gender is considered to be a socially constructed expression of self and there is a consensus among scholars that apart from biological factors a variety of internal and external forces are at work as children attempt to make meaning of gender (Bem, 1974; Evans & Penney,

2002; Huffaker & Calvert, 2006; Leaper, 2011; Leman & Tenenbaum, 2011; Marsh & Byrne, 1991; Martin & Ruble, 2004; Martin et al., 2002; Ridgeway & Correll, 2004; Zosuls et al., 2011). The self-socialization process of gender construction is how boys learn to “act like boys” and girls learn to “act like girls” from interactions with significant others (i.e. parents, teachers), peers, and society (Leaper, 2011; Zosuls et al., 2010). Therefore, gender stereotypes and the social environment work in combination to play a significant role in gender development.

In a similar manner, physical self-concept is also developed through internal and external frames of reference (Craven & Marsh, 2008). The presence of gender stereotypes in physical education is a reasonable explanation for physical self-concept gender differences, but the relationships are likely more complex. The processes of gender construction and physical self-concept development are similar and involve self-description, self-evaluation, and frame of reference. While gender stereotypes create an environment that is governed by hegemonic masculinity (Connell, 2008; Connell & Messerschmidt, 2005; Ridgeway & Correll, 2004), they do not solely account for the multiple factors that can provide an explanation for physical self-concept gender differences. It is more likely that gender stereotypes contribute to the masculine environment of physical education, which influences the self-socialization process of gender development. Gender construction and physical self-concept development share many parallels and it is possible the climate created by hegemonic masculinity and the social environment of physical education play a part in students’ self-description, self-evaluation, and frame of reference for both gender construction and physical self-concept development.

### **Physical Education: A Gendered Environment**

Physical education has an extremely gendered history, but over the past forty years an awareness of gender issues in physical education has been evolving (Bain, 2009; Kirk, 2002;

Kirk, 2003; O'Sullivan, Bush, & Gehrig, 2002). Initially, the most pressing gender issue was whether or not girls were receiving equal opportunities in physical education. In the United States, Title IX (1972) has impacted equal opportunities for girls and women in education, sport, and physical education. This piece of legislation mandated that physical education could no longer be segregated by gender and both girls and boys must have equal opportunities in physical education classes (Brown & Rich, 2002; Kirk, 2003; O'Sullivan, et. al, 2002). Although Title IX (1972) has led to some changes-primarily increases in girls' participation in sport- many contend that it has contributed to the dichotomous view of gender and the proliferation of a masculine model of physical education (Kirk, 2003; O'Sullivan, et al., 2002). For example, Title IX (1972) allows the separation of boys and girls for certain activities (i.e. contact sports) and teachers often continue to separate students during sex-typed activities (Flintoff & Scranton, 2005; Kirk, 2003). Today, many researchers argue that this piece of legislation encourages a bipolar view of gender and that the greatest lesson from Title IX (1972) is that there is a difference between access and equity (Brown & Rich, 2002). As a result, physical education classes are now considered to be places that emphasize and foster gender disparities (Connell, 2008; Kirk, 2003; Penney & Evans, 2002) and research evidence supports the conclusion that a coeducational environment may actually contribute to exclusion of girls in physical education while promoting hegemonic masculinity (Kirk, 2003; O'Sullivan et al., 2002).

The hegemonic gender order in physical education influences the types of activities students participate in, their actual and perceived skillfulness, how they view and use their bodies, and their interactions and relationships with the teacher (Azzarito & Solmon, 2006; Azzarito & Solmon, 2009; Larrison et al., 2009; Lee, 2009). Surprisingly, physical education teachers are often aware of the gender order present in their classrooms, yet they continue to



reinforce a hegemonic masculinity (Brown & Rich, 2002; Evans & Penney, 2002; Larrison et al., 2009). For example, the activities teachers include in their curriculum are often stereotyped by gender (i.e. boys play football and girls jump rope). Likewise, when teachers have students demonstrate activities or skills, boys are often chosen to demonstrate male stereotyped activities while girls are chosen to demonstrate female stereotyped activities (Constantinou, 2008). Students also reinforce the masculine atmosphere of physical education. For boys and girls, activity choices, participation, and nonparticipation are all influenced by what is considered to be gender appropriate (Azzarito & Solmon, 2009; Tischler & McCaughtry, 2011). Both boys and girls have stereotypes regarding what activities are appropriate for males and females (Klomsten et al., 2005). However, girls often seem to reinforce these stereotypes more than boys, which can influence their performance and perceptions of ability (Chalabaev, Sarrazin, & Fontayne, 2009; Klomsten et al., 2005; Solmon, Lee, Belcher, Harrison, & Wells, 2003).

Many activities are deemed either gender appropriate or inappropriate in physical education, and research has consistently demonstrated gender differences among perceptions of ability in gender-typed activities (Lee, 2009). Boys tend to have higher perceptions of ability when the activities are stereotypically masculine and girls have higher perceptions of ability when the activities are stereotypically feminine (Caglar, 2009; Klomsten et al., 2006; Lee, 2009). These findings are similar to those documenting gender differences in physical self-concept, which is reasonable considering the link between perceptions of ability and self-concept.

In addition, females in particular feel more pressure to conform and avoid participating in masculine typed activities (Solmon et al., 2003). However, both girls and boys may avoid in participating in activities that are deemed gender inappropriate in order to avoid the risk associated with transgressing gender boundaries (Azzarito & Solmon, 2009; Cockburn & Clarke,

2002; Gorely, Holroyd, & Kirk, 2003; Paechter, 2003). As teachers and students reinforce traditional stereotypes through activity choices and opportunities, students' construction of gender identity and physical self-concept will be affected (Welk & Joens-Matre, 2007). When children are separated during sex-typed activities, teachers are inadvertently teaching their students what is appropriate for each gender and children's gender identities may be affected by their feelings of compatibility with each category. As a result, students are receiving a clear message that they clearly belong to one of two groups. Similarly, physical self-concept may be influenced since students typically rate themselves higher in domains that are deemed gender appropriate (Caglar, 2009; Klomsten et al., 2006). Thus, cultural expectations of gender appropriateness may influence students' self-perceptions and the opportunity to participate only in gender typed activities could impact physical self-concept in both positive and negative ways.

The hegemonic masculinity present in physical education not only affects teachers' activity choices and student participation, it can also influence students' perceptions of skillfulness. Actual skillfulness and perceived skillfulness in gender typed activities are issues for not only girls but low-skilled males as well (Davison, 2000; Flintoff & Scranton, 2005; Millington & Wilson, 2010; Solmon et al., 2003; Tischler & McCaughtry, 2011). For males, the ability to display skillfulness within the gym or on the field can contribute to their ability to move to the top of the hegemonic masculine pyramid (Bramham, 2003; Hickey & Fitzclarence, 1999; Tischler & McCaughtry, 2011). This is likely to influence their physical self-concepts. If boys are either not skilled or do not perceive themselves to be skilled, their physical self-concepts can suffer as a consequence. Although it is speculated that boys tend to value sport and activity performance more than girls, girls also feel the need to be skillful in physical education (Azzarito & Solmon, 2006; Gorely et al., 2003; Flintoff & Scranton, 2001; Klomsten et al.,

2005) and perceptions of ability are a central component of physical self-concept (Marsh et al., 2010). Unfortunately, both teachers and female students view males as more skilled in physical education (Chalabaev et al., 2009; Larrson et al., 2009). When female students view males as more skillful, it can decrease their participation in class (Constantinou, Manson, & Silverman, 2009).

Students' skill development and performance are associated with their perceptions of ability and activity levels and when children have higher perceptions of competence they are more likely to be physically active (Barnett, Morgan, van Beurden, & Beard, 2008; Welk & Schaben, 2004; Welk & Joens-Matre, 2007). According to the REM, participation in physical activity and physical self-concept are related; therefore if girls choose not to participate because they perceive males as more skillful, their lack of participation will hinder the development of a positive physical self-concept. Likewise, the same can be assumed for low-skilled males in PE. In addition, research examining the REM in physical education has concluded that skill development and physical self-concept are closely related (Peart et al., 1988). Therefore, gender differences related to skillfulness, whether actual or perceived, are certainly contributing factors to physical self-concept differences.

The physical body also plays an important role in the formation of gender identity and physical self-concept within the context of physical education (Azzarito & Solmon, 2009; Flintoff & Scranton, 2005; Kirk, 2002; Kirk, 2003; Marsh, Hau, et al., 2007 ). Physical education is a classroom where the body is seen as an instrument and tool used to demonstrate knowledge (Paechter, 2003)-much like a pencil and paper in a mathematics classroom. Whether it is in the locker room, gym, or outdoors, the body is often used in gendered ways during physical education and is put on display in front of others (Larrson et al., 2009; Paechter, 2003).

Regardless of gender, adolescents unfortunately often report dissatisfaction with their own bodies (Lawler & Nixon, 2011). For males, the body functions as a tool to display their masculinity and secure a place in the gender hierarchy of the class. Boys value an outward appearance of strength and strive to have a muscular physique that rivals those of professional athletes and meets a masculine ideal (Azzarito & Solmon, 2006; Brown, 2005; Gard, 2006; Klomsten et al., 2005; Rosenblum & Lewis, 1999). Sites such as the locker room often provide an opportunity for social comparisons of the body. As males compare their bodies to one another, their bodies become an outward expression of masculinity. Failing to meet this masculine ideal may result in the questioning of their masculinity or even their sexuality (Clarke, 2002; Davison, 2000; Gard, 2006; Gorely et al., 2003; Lawler & Nixon, 2011; Paechter, 2003).

Girls, on the other hand, are expected to be thin, smaller, and have a less muscular physique that projects femininity (Azzarito & Solmon, 2006; Lawler & Nixon, 2011; Molloy & Herzberger, 1998; Rosenblum & Lewis, 1999). It has been documented that girls value having an attractive face and slender, more feminine body (Gorely et al., 2003; Klomsten et al., 2005). When students' bodies do not meet the desired ideal it may become an obstacle to their outward expressions of gender. For instance, if a female has a muscular body it can hinder her outward projection of femininity and also bring her sexuality in to question since adolescents often view muscular and athletic females as being "butch" or "lesbian" (Clarke, 2002; Gorely et al., 2003). Specifically in a physical education setting, the body becomes a tool for performance and displaying one's own gender within a social environment and many students form opinions of their bodies in relation to the social context (Azzarito & Katzew, 2010; Lawler & Nixon, 2011). Feelings related to physical appearance are central to physical self-concept (Crocker et al., 2006)

and conformity to gender expectations in combination with displays of the body in PE can influence how students evaluate their own bodies and appearance.

Finally, since both gender and physical self-concept are influenced by external factors (Ridgeway, 2009; Shalveson et al., 1976), social relationships in PE may potentially impact both. Teacher-student interactions and relationships are influenced by gender in physical education. For example, some researchers have stated that teachers either do not provide positive feedback or overlook when students excel in activities that are deemed gender inappropriate (Brown, 2005; Lee, 2009; Larrson et al., 2009). In addition, there tend to be gender differences in the frequency and type of feedback teachers provide to students, as well as student perceptions of teacher feedback (Nicaise, Coggerino, Bois, & Amorose, 2006). By either overlooking positive performances in gender inappropriate activities or providing more feedback to high skilled-males, teachers are unknowingly reinforcing gender stereotypes and perhaps hindering physical self-concept development of both boys and girls (Larrson et al., 2009). Even more disturbing, teachers may publicly humiliate students during physical education classes when they do not conform to traditional stereotypes or display adequate skills (Chepyator-Thomas & Ennis, 1997; Davison, 2000). These interactions could negatively impact students' feelings of physical self-concept.

Teacher-student relationships can also promote gender stereotypes in physical education. Males who play sport and are coached by the physical education teacher often develop a relationship above and beyond that of other students. These boys are often praised for their abilities, given more responsibilities than other students, and have a closer personal relationship with the teacher. This often places boys at the top of the hegemonic masculinity hierarchy (Brown, 2005). Unfortunately, teachers often acknowledge male dominance in their classrooms

as something that is expected and may avoid challenging traditional stereotypes or favor boys over girls (Chepyator-Thomas & Ennis, 1997; Larrison et al., 2009; Lirgg, 1993; Brown, 2005; Chalabaev, Trouilloud, & Jussim, 2009). By either ignoring or condoning the hegemonic gender order present in physical education, teachers play an important role in the construction of gender and physical self-concepts of their students.

In summary, students and teachers are both aware of the gender order in physical education and generally enforce dominant gender stereotypes associated with hegemonic masculinity (Brown & Rich, 2002; Evans & Penney, 2002; Larrison et al., 2009). These stereotypes create an environment that regulates opportunities and access to activities, actual and perceived skillfulness, use and self-evaluation of the body, and teacher-student interactions and relationships (Azzarito & Solmon, 2009; Chepyator-Thompson & Ennis, 1997; Klomsten et al., 2005; Lee, 2009). Researchers typically attribute physical self-concept gender differences in physical education to traditional stereotypes. It is reasonable to assume however, that these stereotypes simply create an environment that influences the experiences students have, the role of social comparison, and interactions with significant others which work in combination with the social construction of gender in order to influence physical self-concept. Thus, the masculine environment of physical education is likely a contributing factor to students' self-descriptions, self-evaluations, and frame of reference for both gender construction and physical self-concept development.

### **Conclusions, Implications, and Directions for Future Research**

A positive physical self-concept is a valuable outcome in physical education and is associated with increased physical activity participation, increased skill development, and improved performance among students (Crocker et al., 2006; Hagger et al., 2005; Marsh,

Papaipannou, et al., 2006; Peart et al., 1988). Although young people's physical activity levels and participation in physical education are declining (USDHHS, 2011), research indicates that developing a positive physical self-concept can produce favorable outcomes among students (Chanal et al., 2005; Marsh, Trautwein et al., 2006; Trautwein et al., 2008). The literature also indicates that current physical education programs may not be the optimal environment to promote physical self-concept development among all students. Currently, there is a body of evidence to support gender differences favoring males in physical self-concept scores among students in physical education (Asci, 2002; Caglar, 2009; Hagger et al., 2005; Hayes et al., 1999; Schmalz & Davison, 2006). Although many point to gender stereotypes in physical education as the most significant influence on students' physical self-concepts, the relationship between gender stereotypes and physical self-concept is likely much more complex. While evidence supports the notion that prominent gender stereotypes in Western society contribute to a hegemonic masculine environment in schools, there is a need for more examination of how this context is related to gender construction and physical self-concept among students.

Perhaps the most significant contribution of physical self-concept research in physical education is the idea that a positive physical self-concept can be developed and maintained (Daley & Buchanan, 1999; Dunton et al., 2006; Gheris et al., 2010; Marsh & Peart, 1988; Schneider et al., 2008). This finding holds many implications for physical education teachers. If teachers provide students with cooperative activity choices, create opportunities to improve fitness levels, and promote skill development in their classes they can positively impact students' physical self-concepts (Craven & Marsh, 2008; Gheris et al., 2010; Schneider et al., 2008). Unfortunately, these conclusions are limited in generalizability since the majority of studies have included only female physical education students. Therefore, future research should examine

how teachers can foster the development of a positive physical self-concept among both boys and girls in their classes.

In addition, existing physical self-concept literature has made a substantial contribution by providing considerable evidence that males have higher physical self-concept across a variety of settings, cultures, and age groups (Caglar, 2009; Crocker et al., 2000; Marsh et al., 1997; Martin et al., 2010; Hagger et al., 2005; Hagger et al., 2009). There are conflicting results, however, with regard to which specific sub-domains males score higher in when compared to females (Caglar, 2009; Klomsten et al., 2004; O'Dea & Abraham, 1999). These inconsistencies are likely due to the use of global self-concept measures and multiple physical self-concept instruments. Marsh's model and measures of physical self-concept are believed to be the most valid and reliable currently available to researchers (Marsh et al., 1994; Marsh, Asci, et al., 2002; Marsh et al., 2010). Future investigations examining physical self-concept in physical education should employ his framework and instrumentation in order to contribute to a deeper understanding of physical self-concept.

There is overwhelming support indicating that physical education often promotes a bipolar view of gender and conforms to hegemonic masculinity (Connell, 2008; Kirk, 2002; Larrison et al., 2009; Penney & Evans, 2002). The masculine environment of physical education is reinforced by the opportunities teachers provide for students, the activities students choose to participate in, students' actual and perceived skillfulness, the role of the physical body, and teacher-student interactions (Azzarito & Solmon, 2009; Azzarito & Katzew, 2010; Chepyator-Thomson & Ennis, 1997; Flintoff & Scranton, 2005; Larrison et al., 2009; Lee, 2009). From existing research it is reasonable to conclude that physical education continues to reinforce hegemonic masculinity and a prominent gender order. It is however, premature to assume that



gender stereotypes are the sole reason for gender differences in physical self-concept scores as there is no existing research to support this notion. Instead, future research should investigate the hypothesis that gender stereotypes indirectly influence physical self-concept by contributing to hegemonic masculinity in physical education while also controlling for physical activity and skill levels of students.

Finally, in addition to support for a traditionally masculine physical education culture, research indicates that there are many parallels between gender construction and physical self-concept development. For example, both constructs should be viewed from a developmental perspective and evolve as children develop cognitively (Marsh, Hau, et al., 2007; Martin & Ruble, 2004; Tobin et al., 2010). In a similar manner, gender construction and physical self-concept development both involve aspects of self-description, self-evaluation, and frame of reference (Craven & Marsh, 2008; Martin et al., 2010; Tobin et al., 2010). Therefore, it is likely that there are existing relationships between the two within a physical education context. Specifically, future investigations should examine the relationships among the masculine environment of physical education, gender construction, and physical self-concept development. Future research should also examine how the traditionally masculine culture of physical education is related to students' frame of reference with regard to gender construction and physical self-concept development.

In conclusion, current physical self-concept literature makes a substantial contribution by establishing gender differences in physical education and suggesting that a positive physical self-concept can be developed and maintained. There are however, no existing investigations examining potential relationships between gender construction and physical self-concept development. Moreover, there is no investigation of the potential effects a masculine culture of

physical education can have on both gender construction and physical self-concept development. Therefore, from this review of literature, it is clear there is need to examine the relationships between gender construction and physical self-concept development in physical education. In addition, researchers should investigate how hegemonic masculinity in physical education creates an environment that contributes to gender differences in physical self-concept.

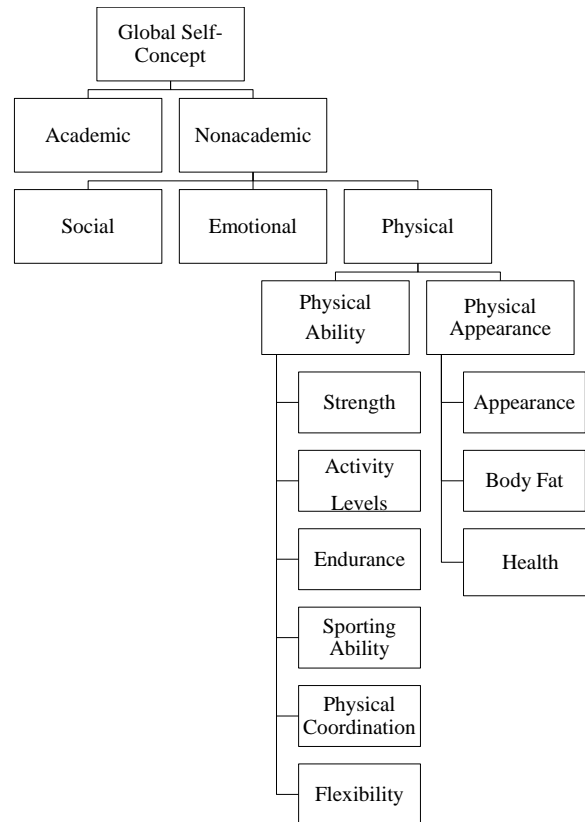


Figure 1. The Hierarchal Structure of Self-Concept and Physical Self-Concept.

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## APPENDIX B: STUDENT SURVEY

**Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_ **Grade:** \_\_\_\_\_  
**School:** \_\_\_\_\_ **Teacher:** \_\_\_\_\_  
**Grade (circle one):**  
 9<sup>th</sup>    10<sup>th</sup>    11<sup>th</sup>    12<sup>th</sup>  
**Race (circle all that apply):**  
 African American/Black    Asian/Asian American    Caucasian/White    Latino    Hispanic  
    Native American/American Indian    Pacific Islander    Multiracial  
 Other: \_\_\_\_\_

**Think about yourself physically (ex. how good looking you are, how strong you are) and answer each question below as to how you feel right now. Circle 1 if the answer is not true for you and 6 if it is very true. You may also choose any number in-between to rate your feelings.**

(Marsh, 2009)

STATEMENT	FALSE <span style="float: right;">TRUE</span>					
1. I often do exercise or activities that make me breathe hard.	1	2	3	4	5	6
2. I do physically active things (e.g. jog, dance, bicycle, aerobics, gym, swim) at least three times a week).	1	2	3	4	5	6
3. I do lots of sports, dance, gym, or other physical activities.	1	2	3	4	5	6
4. I do sports, exercise, dance or other physical activities almost every day.	1	2	3	4	5	6
5. I have a nice looking face.	1	2	3	4	5	6
6. I am better looking than most of my friends	1	2	3	4	5	6
7. I am good looking.	1	2	3	4	5	6
8. My waist is too large.	1	2	3	4	5	6
9. I have too much fat on my body.	1	2	3	4	5	6
10. I am overweight.	1	2	3	4	5	6
11. I feel confident when doing coordinated movements.	1	2	3	4	5	6
12. Controlling movements of my body comes easily to me.	1	2	3	4	5	6
13. I am good at coordinated movements.	1	2	3	4	5	6
14. I can perform movements smoothly in most physical activities.	1	2	3	4	5	6
15. I find my body handles coordinated movements with ease.	1	2	3	4	5	6
16. I can run a long way without stopping.	1	2	3	4	5	6
17. I can be physically active for a long period of time without getting tired.	1	2	3	4	5	6
18. I am good at endurance activities e.g. distance run, aerobics, swim, cross-country, ski.	1	2	3	4	5	6
19. Overall, most things I do turn out well.	1	2	3	4	5	6
20. Overall, I am no good.	1	2	3	4	5	6
21. Most things I do, I do well.	1	2	3	4	5	6
22. Overall, I have a lot to be proud of.	1	2	3	4	5	6
23. Nothing I do ever seems to turn out right.	1	2	3	4	5	6

24. I am quite good at bending, twisting and turning my body.	1	2	3	4	5	6
25. My body is flexible.	1	2	3	4	5	6
26. I think I would perform well on a test measuring flexibility.	1	2	3	4	5	6
27. Physically, I am happy with myself.	1	2	3	4	5	6
28. Physically, I feel good about myself.	1	2	3	4	5	6
29. I feel good about who I am physically.	1	2	3	4	5	6
30. I usually catch whatever illness (flu, virus, cold etc.) is going around.	1	2	3	4	5	6
31. I am sick so often that I cannot do all the things I want to do.	1	2	3	4	5	6
32. I get sick a lot.	1	2	3	4	5	6
33. When I get sick, it takes me a long time to get better.	1	2	3	4	5	6
34. I have to go to the doctor because of illness more than most people my age.	1	2	3	4	5	6
35. I am good at most sports.	1	2	3	4	5	6
36. I have good sports skills.	1	2	3	4	5	6
37. I play sports well.	1	2	3	4	5	6
38. I am a physically strong person.	1	2	3	4	5	6
39. I have a lot of power in my body.	1	2	3	4	5	6
40. I would do well in a test of strength.	1	2	3	4	5	6



## **APPENDIX C: FIELD OBSERVATION DATA COLLECTION FORM**

### **Field Observation Data Collection Form**

**Observation #:**

**Date:**

**Class Description:**

**Additional Notes:**

**Perceptions/Thoughts:**

**Further Questions:**

## **APPENDIX D: INTERVIEW PROTOCOL**

### **Interview Protocol**

1. What do you like best about PE?
  - a. What else do you like about it? Anything else you can think of?
2. What do you /dislike about your PE class?
  - a. What else don't you like? Anything else you can think of?
3. How hard do you usually work in PE?
  - a. Can you give me an example?
  - b. Are there times where you work harder than normal? Explain.
  - b. Are there times when you don't work as hard as normal? Can you give me an example?
  - c. Are there times when you don't participate at all? Can you give me an example?
  1. If given the choice, would you participate in PE? Why/why not?
4. How would you compare PE to other classes?
  - a. Are there classes you like better? Why or Why not?
  - b. What classes are PE better than?
  - c. How would you compare your physical abilities to your academic abilities?
  - d. Does this have much impact on how much you like classes?
5. Do you like the activities your teacher provides in PE?
  - a. What are your favorite activities? Least favorite? Why?
    1. If you had a choice, would you still participate in these activities?
    2. Are there other activities that you prefer/would choose instead in PE?
    3. What is it you like/dislike about these activities?
  - b. If you had a choice, would you participate in these activities outside of school?
  - c. Why/Why not?
2. How would you describe your abilities in PE? How would your friends describe your abilities?
  - a. Are you better/worse/same as your classmates?
  - b. Do you get grades in PE? How do you feel about your grades?

c. Do you feel that you perform as well as others of the same gender? What about the opposite gender?

d. Why/Why not?

3. How would you describe the atmosphere in your PE class?

a. What types of activities do you participate in?

b. Can both boys and girls participate?

c. Are these activities only for athletes or can everyone be successful?

d. Why/Why not?

4. Have you ever experienced co-ed PE?

a. Can you compare/contrast single sex and co-ed PE?

1. What do you think are the pros of each?

2. Cons of each?

b. Do you believe boys and girls should participate in certain activities separately?

1. If so, can you provide examples?

c. Do you think boys and girls should be allowed to play on sports teams together?

d. Why/Why not?

5. How do you feel about yourself physically? How would your friends describe you?

a. Describe your flexibility, appearance, etc..

b. Describe why you feel this way.

## APPENDIX E: CHAPTER TWO EXTENDED RESULTS

### Results

Three major themes developed from data analysis: 1) *Points of Perception*, 2) *Social Risk*, and 3) *A Favorable Competitive Environment*. Participants outlined two *Points of Perception*, “firsthand accounts” and “external feedback”, which provided a basis for physical self-concept development. Multiple aspects of *Social Risk* in coed physical education were also identified, specifically concerns with ability and appearance and perceived pressures to perform or look a certain way. However, same-sex physical education negated these concerns and was viewed as a positive alternative. Finally, competition was frequently discussed in terms of *A Favorable Competitive Environment*. Overall participants enjoyed and valued competition but it was considered to be activity dependent, unpleasant in certain circumstances, and desirable only in appropriate amounts.

### Points of Perception

Participants identified *Firsthand Accounts* and *External Feedback* as two major sources of information that impacted their physical self-concept development. The majority of participants (80%, 8/10) discussed how “firsthand accounts” of their own performances (i.e., internal frame of reference) and the performances of others (i.e., external frame of reference) in physical education shaped feelings of physical self-concept. One participant, Amanda (all names are pseudonyms), compared herself to other students in the physical education class when discussing her perceptions of coordination:

Normally when you're watching someone and you can tell if they're athletic or if they're not athletic, it's normally determined by whether they're coordinated or not. I think I'm pretty coordinated. When we're playing dodge ball there are a lot of the girls that will try to catch the ball and they just... they can't. I'm like, 'How are you not catching it?'... but I guess that has a lot to do with coordination, so I think I'm pretty coordinated.

Field observations supported that firsthand accounts provided messages regarding physical appearance and ability for girls in this study. For instance, the archery unit was structured in such a way to facilitate direct observation of classmates. There were a total of six targets arranged at varying distances and girls were divided into groups of three to four students. Each student was allowed three attempts to hit the target before her group would rotate to a different station. Students were allowed two practice rounds and any remaining rounds completed during the class were scored individually. After they retrieved their arrows, the girls would report their scores to the teacher to be recorded. Students watched one another shoot and they were often overheard cheering one another on and making encouraging remarks such as “good job” and “that was a good shot”. In one instance, a student told her group member “good job” when she hit the target and later referred to herself as “terrible” when it was her turn to shoot and she missed. She observed her peer hit the target and used this firsthand account of another’s performance to provide information regarding her own competence. Throughout the unit, it was not uncommon to observe the students encouraging their classmates, yet often making degrading comments regarding their personal performances such as “I suck at this” and “Zero!” when they did not hit the target. Although during interviews only one participant discussed her classmates as a primary source for firsthand accounts, field observations indicated it was common among girls in this physical education class.

For other participants, it was not fellow students in their physical education class that provided a source for firsthand accounts and external comparisons. The most common firsthand accounts of physical ability and appearance discussed during interviews were 1) other girls in general (70%, 7/10), 2) family members (40%, 4/10), 3) elite athletes/celebrities (30%, 3/10), and 4) friends (20%, 2/10).

The physical self-concept domains of flexibility, strength, and sports ability were described via firsthand accounts, particularly those of family members. With regard to flexibility, Heather stated she was not as flexible as her cousin and both Beth and Amanda described themselves as “not as flexible” as their sisters. However, Alicia evaluated her sports ability positively because her family is “really athletic”. In addition to family members, the most popular source of information for firsthand accounts was other girls in general. For instance, Vanessa considered herself somewhat strong because she “can throw a ball a lot farther than a lot girls”. With regard to flexibility, participants made comments such as “I would be flexible but there are people who are more flexible [than I am]”.

Although participants described themselves in relation to others in several of the physical self-concept sub-domains, by and large the most frequent sub-domain discussed was appearance. Firsthand accounts of friends’ appearances were the standard of comparison for two participants with regard to their own appearance. For example, Morgan described her friends as the opposite of herself when she said “My friends are just really tiny and they’re not as tall as me. I mean, some of them are, but they’re like, tiny”. Field notes validated this finding. For example, during a lesson that involved the students participating in a “Power Walk”, two girls stayed behind the rest of the class and were engaged in a discussion that revolved around their bodies. The girls were walking together, comparing their stomachs and thighs, and were even observed pinching body fat on their midsections. Throughout the conversation, the girls made comments such as “I’m insecure in a swimsuit now”, “I need to lose a few pounds”, and “I need to get back in shape”.

Similar to the events noted during field observations, when firsthand accounts of other girls in general were the primary sources of information, the greater part of the discussion was

based on appearance, body shape, and body size. For instance, when asked to describe her appearance Heather stated, “I would say that there are prettier girls and then there are like...I’m better looking than some girls, but then I also see girls that I’m like... ‘Oh wow, they’re really pretty’.” Vanessa expressed similar feelings when discussing various aspects of her own body, such as muscle definition. She commented that her legs were “not as skinny as somebody else’s” and she said “I guess I’m not as skinny as someone who really doesn’t exercise”. She also communicated conflicting emotions related to comparing herself to others who had different body shapes and sizes:

It can be bad for your.... I guess if you’re looking at someone who is really skinny it can be bad. Like, I really wanna look like her but I can’t, just because how my body is and how I’m built, because I play soccer and all these other sports so much.

Morgan also talked about the idea of being “skinny” when she said “It’s just like, everyone is skinny I guess and you fit in more [if you are also skinny]”. Another participant, Beth, was very honest regarding her firsthand accounts of others’ appearance when she admitted, “I do look at the super-skinny and wish that I had that body.” It is interesting to note that even when discussing endurance, Rebecca referred back to her body shape and size and compared herself to other girls when she said, “Well, cause I’m not one of those like, really, really, skinny girls that can run you know... I actually don’t know what people see in me.” For the girls in this study, firsthand accounts of others’ physical appearance were the most frequently discussed sources of information for physical self-concept.

Firsthand accounts of physical ability and appearance were also primary “Points of Perception” for internal comparisons. When discussing various aspects of physical self-concept, all participants (100%) mentioned firsthand accounts of their own performances in different activities. For example, when Heather was describing her coordination, she stated “I’d say I’m

more coordinated, like when you're dancing or cheer dancing, I'm very coordinated in that, but when it comes to the basketball drills we were doing...I couldn't do any of that." Michelle expressed similar sport-specific feelings of coordination when she commented, "Coordination, I have pretty good hand and feet coordination, like soccer and stuff like that, but there are a couple of things, like Pickleball, that I'm not good at." When discussing flexibility, all of the girls mentioned this sub-domain of physical self-concept in relation to firsthand accounts of personal achievements. They made comments such as "I can only do a left split", "I can't touch my toes", and "I was a cheerleader for a long time so I can do the splits". Vanessa described herself as flexible and said "I can get my legs up in the air. I can't do a split, like I can halfway do a split, not fully, but I guess I can...but baseball or soccer I can really like, I can reach up really high to catch a ball. I can reach out I guess." Alicia expressed similar feelings when describing her cardiovascular endurance and said, "I guess I'm not good for long periods of time. I like dancing, I dance for a while I guess and then if it's running a long time, I can't do that. That's hard."

Participants also used firsthand accounts as "Points of Perception" when asked to compare and contrast their academic and physical abilities. For example, Michelle stated, "I'm actually really good in school work right now, so that's really good, but I'm also really good at sports, you know? So, I guess they kind of balance each other, but I've always been better at sports than [academics]". Dee also mentioned personal performance when she compared her achievements in the physical domain to her academic abilities. She said, "Well, I don't really exercise that much so I wouldn't say I'm really an athlete, but I mean, I'm really good at math." Beth described her physical abilities more positively than academic abilities based on firsthand accounts of her own acts. She commented, "I don't know, I mean, I've never been that great at school, studying, homework, and when I want to study, or when I need to study, I don't. And



when I want to do a physical activity I do it.” Only one participant, Amanda, discussed multiple aspects of her physical self in relation to one another. For example, she made comments such as “I’m a strong person, but balance, I think that’s kind of easy.” Although comparing between physical self-concept sub-domains, she was still using firsthand accounts of her own abilities in order to construct respective physical self-concepts.

The secondary “Point of Perception” for half of participants (50%, 5/10) was external feedback, specifically feedback from family members (20%, 2/10), coaches (20%, 2/10), and friends (10%, 1/10). Michelle’s perceptions of her sports ability were formed based on comments from both parents and coaches. Vanessa said she knows how to describe her abilities in soccer “by what my parents tell me”. When asked to elaborate on the feedback received regarding her soccer abilities she said, “I guess just what other people tell me, that’s where I know because I guess it’s how people see me that it determines [how she feels about her abilities in soccer].” Beth was the only participant to discuss comments from friends. When asked about her appearance she said, “Friends tell me I’m pretty and stuff. I mean, I don’t really agree with them, but I guess other people like the color of my eyes...and my skin color.” Although it was not discussed during participant interviews, field observations provided additional evidence that comments from others may be a source of information in the physical education environment. For example, throughout the archery unit the girls consistently provided positive feedback to one another regarding their performances. One student said “Becky is a pro at this” and later in the same lesson Becky was overheard telling her group “I’m finally good at something”. During a different archery lesson one student stated, “this is the talented group” when referring to her group’s performance. Comments and responses regarding performance were not limited to verbal feedback. During the badminton tournament, one partner group was consistently observed giving

each other high-fives when they scored a point. In addition, the teacher was often observed providing positive performance, corrective, and nonverbal feedback to students. Therefore, although participants may not have been aware of it, they were frequently receiving feedback from their peers and the teacher, which could be considered “Points of Perception”. External feedback discussed during interviews and documented in field notes was considered a source of information only for internal comparisons.

### **Social Risk**

“Social Risk” was the second major theme that emerged from participant interviews and field observations. The physical education environment for participants in this study was structured to facilitate social interaction between students. Amanda referred to her physical education class as “an all-time group project” where students can interact with their peers. She also pointed out that the social dynamics in physical education are much more complex than just having “fun”. She went on to say, “You’re interacting with them [classmates], not only socially, but you’re getting to know like, their strengths and weaknesses.” Like Amanda, all of the girls (100 %) addressed the social setting of physical education. For some (60 %, 6/10), social interaction was the aspect they enjoyed the most about the class. Field observations can attest to these perceptions. Students in the physical education class were often self-segregated into distinct social groups, yet there was positive interaction between all groups. Students were observed joking, laughing, and intermingling with one another throughout the course of the semester. However, according to participant interviews, while physical education does provide the opportunity to interact with friends, the class structure, specifically a coeducational (coed) setting, was perceived to lend itself to potential negative social consequences. Thus, “Social Risk” was a common topic for discussion throughout participant interviews.

Participants addressed many concerns related to “Social Risk” in coed physical education, such as concerns regarding their ability, appearance, and a pressure to perform or look a certain way. Participants often framed their perceptions of “Social Risk” in relation to the atmosphere of the same-sex physical education environment. All participants (100%) drew on past experiences and compared their current all-girls physical education class to coed classes they experienced during middle school. There was a substantial feeling of “Social Risk” in coed physical education that was practically eliminated in an all-girls setting. The primary “Social Risks” that arose in coed physical education were concerns with appearance (50 %, 5/10) and concerns with ability (80%, 8/10). All participants (100%) expressed that same-sex physical education classes negated these concerns. For example, Vanessa discussed how important appearance could be in coed physical education when she said:

The girls would...before they go out to PE they would go and fix their hair and they would make sure that nothing was wrong or whatever because of the guys. But here it's just like, you just get changed and then you go out and you don't really have to worry about if your hair is out of place or if you haven't shaved or something like that. That really doesn't go against you I guess. Just cause all-girls, like, some girls haven't shaved or whatever so you don't have to worry about being criticized.

Dee expressed similar feelings and mentioned that in an all-female environment that the girls didn't “worry as much about sweating”. Laura actually said she tries harder in an all-girls class because “no one really cares about your appearance”. She contrasted this sentiment with her prior experiences in a coed setting and stated:

I think some girls would just not try as much cause they're around guys and they just wanna be cute and stuff. And then guys, they don't care, so they just do their best always. So I think it's just like, if you're around guy, then [girls] don't try as hard. They [the girls] didn't do anything and they only cared about their appearance and stuff.

The notion of a perceived social pressure to appear a particular way in coed physical education classes was discussed by several participants. Beth considered the coed atmosphere to set

different expectations and demands on girls with regard to appearance and said “I think the pressure would be higher in a coed school because there’s guys everywhere and you have to worry about what you look like and how skinny you are, and make-up and clothes, stuff like that”. It is interesting to note that throughout the course of field observations, there was never an instance when a student did not dress in the required physical education uniform (school issued top and athletic shorts). Also, across two classes ( $N=46$ ), only one student was ever noted to wear visible make-up.

Participants also discussed in detail “Social Risk” associated with skill level in coed physical education. There seems to be a substantial threat for students who are considered to be less skilled in a coed class and according to Morgan, the less skilled students are the girls. She stated, “I feel like guys have their own level and girls have their own level of skills”. Alicia articulated similar feelings when she said, “I think for coed you have more of the varied skill set... and I think there’s big differences in coed PE.” According to Amanda, “some guys have different abilities than girls” and some boys are “more athletic”. One participant even discussed how boys would act more skilled than perhaps they actually were and said “They’d [the boys] literally act like they were better than everyone and then they just do more than they’re supposed to.” Even girls like Michelle, who consider themselves skilled, may not have sufficient skill to succeed in a coed setting. She said, “I could always like, hang ya know? Like up there, but maybe not in like, basketball. Because boys tend to overpower in those kinds of sports.” The idea that boys overpower girls in coed physical education and take control of the class was consistent among other participants as well. Dee said the boys would “be playing hard and you know, like, running fast so the girls didn’t have time to reach it [the ball]”. She also commented that the girls were “letting the guys do whatever they want” and “weren’t participating as much [as the boys]”.

Amanda also discussed how girls' participation can be negatively impacted in coed classes and said, "I feel like guys are more prone to exclude girls whenever, cause they're like 'Oh she can't do it, she can't do this, she can't do that'." Although during field observations it was often noticeable which students were the more skillful in the class, these students never seemed to dominate during activities. Also, student participation during activities was rarely an issue. In each class, there were sometimes students who would participate less than others. However, while it was not quite at the intensity of their peers, these students always participated on some level and never refused to take part in the activities offered.

Feelings of inadequacy, awkwardness, and embarrassment in a coed environment were also common threads for the girls in this study. Beth commented that "Guys would get mad if you didn't win or do something right." Heather discussed how insufficient knowledge or skill in physical education could be detrimental for girls and said:

Like with coed, the guys know how to play sports, so when you would ask a question they kind of like, you didn't want to seem stupid and in all-girls most of the girls in my class don't really know all the knick-knack rules of the sport, so you don't really feel so out of like, an outcast asking a question.

Throughout the duration of field observations, there was never an incident where the students were witnessed getting "angry" with one another when someone made a mistake or did not perform well. There did not appear to be any negative consequences associated with poor performance. For example, during a game of Mat Ball (a modified version of kick ball and dodge ball), one student struck out and the rest of her team was observed encouraging her to try again. During her interview, one student even mentioned that although she prefers to be successful in activities, there is minimal "Social Risk" involved if she is not. She said, "I'm not gonna get really mad at the other team if they beat us or like, mad at my partner if she messes up or things like that."

Surprisingly, interview data suggested that in coed classes the girls were not only worried about a lack of skill, but also appearing to be overly skilled. According to participants (30%, 3/10), there may be negative consequences for girls who are considered “athletic” in a coed physical education environment. They may appear to be “trying too hard” and even be at risk for name calling. For example, Dee expanded on this idea when she stated that there was “a really athletic, competitive girl at my old school and they called her a man”. Heather had a similar experience and said “there was this one girl, everyone called her ‘the beast’ because she was just amazing at everything we did and she was better than some of the guys.” Perhaps Morgan explained perceived pressures regarding appearance and ability best when she said, “Guys are supposed to be better and manlier looking than girls are.” She also stated, “When guys are there you don't wanna look like, not manly but, like you’re better than they are and so you don't wanna try as hard.” Observations provided evidence that there was a wide range of skill level in each class. However, the students observed to be the most skilled were often cheered on by their classmates and provided with positive feedback. There were no instances where high skilled students experienced negative consequences. Therefore, there was no “Social Risk” reported or observed in relation to performance or skillfulness in the all-female classes in this study.

Although a coed physical education class may create anxiety and pressure regarding appearance and ability for girls, same-sex physical education was considered a viable alternative. The majority of girls (90%, 9/10) said they would prefer an all-girls physical education class. Several girls (50%, 5/10) described their current same-sex class as a place where they were free from “judgment” and “embarrassment”. When asked what she liked best about physical education, Michelle said, “I like it because you don’t have to impress anybody- it’s all girls you know. It’s kindof like, more comfortable.” The class environment was also described as

“relaxed”, “supportive”, and “nonjudgmental”. When asked to communicate her perceptions of the atmosphere of her class, Beth said:

I guess [it is] supportive. Family-like. Does that make sense? Because if you do something wrong, nobody cares really. They’re just like, ‘try better’, “try harder next time” or “that was ok, you’ve got it”.

According to Beth, there are advantages in an all-female environment because “You’re not as embarrassed to do different things cause there are not guys watching you.” Heather had a similar attitude and commented, “You don’t have to feel embarrassed. Like, if you can’t kick the ball across the gym, you don’t feel embarrassed, because girls don’t always care about that kind of stuff.” Rebecca preferred an all-girls class because she felt less pressure to perform. She said, “I don’t have to be impressive. Stuff like that. And people don’t have to impress me or anybody else.” Beth liked her same-sex class better than coed classes because “they [the girls] don’t really care if you win or not”. Field notes provided additional support that the physical education environment experienced by these girls was very positive. Reflective field notes such as “the class seems to be a supportive environment” and “very welcoming environment/atmosphere, there is not a lot at stake if you lose” were recorded. These results suggest that unlike a coed setting where there was perceived pressure to look and perform a particular way, the all-girls environment is one where there is no fear of negative consequences associated with not meeting certain unspoken expectations.

### **A Favorable Competitive Environment**

The third theme that emerged from participant interviews was “A Favorable Competitive Environment”. All participants (100%) discussed both positive and negative feelings toward competition and the majority (80 %, 8/10) stated that they enjoyed competition in physical education. Only two (20%, 2/10) said they would prefer to not have competition in their classes. Rebecca commented, “I don’t think it [competition] is ok for PE cause it’s not the Olympics or

anything...I think PE should just be fun and you should have fun in it, not be the best or anything.” Beth expressed a similar sentiment and did not enjoy competition in physical education and said “when it’s competitive it’s not very fun” and “you don’t need to win because you don’t get a trophy or anything”. On the other hand, for the most part participants valued and enjoyed competition in physical education and viewed it as “fun”. Amanda said, “I know some people are a little bit more uncomfortable with it but I feel like competition kindof brings out the better parts of people.” The majority of girls (80%, 8/10) said competition was appropriate for physical education and there was a consistent belief that it is an enjoyable tool to become more active, involved, and skilled in certain circumstances. However, there was a consistent theme that competition is activity dependent, unpleasant in a coeducational setting, and only appropriate in certain amounts.

Over half (75%, 6/8) of the participants who believed that competition is acceptable in a physical education environment said it was activity dependent. The three most popular activities mentioned as favorites during interviews were archery (50%, 5/10), softball (40%, 4/10), and Pickleball (40%, 4/10). For each of these activities, some degree of competition was incorporated into the class. The archery unit culminated with an individual tournament, during the softball unit the teacher recorded team scores, and the Pickleball unit consisted of a partner tournament. Alicia described softball as “kindof competitive” because the teacher kept score, but “people were more competitive” when it came to Pickleball. The Pickleball tournament was frequently discussed among students and is popular throughout the school. Each year there is one tournament and overall winners receive a t-shirt. Heather described the different levels of competition between archery and Pickleball in detail when she said:

For Pickleball and archery I’d say there was a little more competitiveness because there were prizes that we were told we would get. And then the others- basketball and softball-



there wasn't really a prize so I would say that the other two [Pickleball and archery] was like it gave you more motive. Just like archery, you get candy if you hit the candy thing. Then Pickleball, whoever won the tournament got a Pickleball championship t-shirt, so it was more motivation to try to do better.

Alicia also found the t-shirt to be motivating and fun and said "everyone wants a t-shirt".

Michelle agreed that competition was heightened during the Pickleball tournament and stated, "it got really competitive." Student perceptions of competition during activities often varied. For example, although Heather thought archery was competitive, Alicia disagreed and said "people weren't that competitive". Basketball was another frequently mentioned activity in relation to competition, but according to Michelle, only "some people got a little competitive". Competition levels often fluctuated between units and Morgan addressed this variation in her class when she said, "they [the teachers] teach everyone how to play sports and some are more competitive than others, but there's a variety of different things".

The physical education students at this school did have the opportunity to participate in a variety of activities over the course of the semester and throughout field observations it was often noted that the atmosphere of the class would change depending on the type of activity provided. Perhaps the most evident shift was observed during the archery unit. The first half of the unit had been spent practicing and the second half was devoted to individual competition. In the first lesson where scores were recorded, an obvious transition in the atmosphere occurred. For example, during practice rounds the students were primarily concerned with socializing and conversation was often focused on irrelevant topics (e.g. boys, music videos, movies). However, when the teacher began keeping score, the focus of conversation shifted and was concentrated on topics related to the lesson such as shooting, performance, and scorekeeping. Overall, the class appeared to become more engaged in the activity. Two students even began making bets on who would win between them and one was overheard saying "If I beat you, you owe me something!".

In contrast, there were several activities where little to no competition was observed. The fitness unit was not competitive at all and students were often observed helping one another. During an abdominal circuit workout (one minute stations with abdominal exercises at each), one student became discouraged and said “I can’t do it”. Her classmate immediately replied with “Don’t ever say you can’t!” and proceeded to count them both through the remaining repetitions of the exercise. Therefore, competition in this physical education class was perceived as activity dependent.

Participants also discussed how competition was often unpleasant in a coeducational setting. For example, when asked to describe the negative aspects of competition Amanda said, “Well I used to go to a coed school so it was a little bit more uncomfortable with guys, but it’s really not here cause you can kindof be yourself.” When another participant, Michelle, was asked to describe the differences between coed and same-sex classes she immediately mentioned competition. She said, “It’s a little different because in coed PE it was more competitive, but in this one it’s not as competitive cause everyone’s kindof laid back”. Throughout participant interviews, the idea that an all-girls physical education class is a more positive setting for competition was frequently discussed. Morgan mentioned that the all-girls environment was well-suited for competition because “having all girls you can be yourself really and like, do what you want to do and be competitive”. Amanda also suggested that the environment of the class was a positive outlet for competition and said “I think I’m pretty competitive. So, to be able to have a safe environment to be able to play, that’s not really like “oh, she’s being too hard”, I don’t know, it’s just a safe place to interact.” Although like Amanda, some girls (30%, 3/10) described themselves as competitive, all participants (100%) considered boys to be more competitive than girls. Often, girls (80%, 8/10) used the term “competitive” to describe males in

physical education and Michelle even said, “I think boys, like their nature, are more competitive than girls sometimes”.

For participants in this study, the impression that males are more competitive than females led to the conclusion that boys and girls should be separated for certain activities based on the level of competition. For example, when asked her opinion on whether or not boys and girls should be separated for different activities Vanessa stated:

I mean, I think archery is something that guys and girls can do together, but I think all the other stuff that we’ve done, I think so. Guys and girls can do them separately just cause of the aggressiveness, or just because of the competitiveness of the different sports. When we played Pickleball we were pretty aggressive [when playing] so, just a guy [playing] against a girl would be a lot harder and probably not as fun because you’d be like “oh he’s a lot stronger so he’s gonna hit harder.”

Other participants agreed that there are some activities that boys and girls can participate together in, but they should not be “competitive, contact sports” or “a really aggressive sport”. The most common activities mentioned to be sex-segregated were basketball (80%, 8/10) and football (30%, 3/10), which were also deemed as “male activities”. Participants even gave the impression that when girls and boys played either alongside or against one another in competitive activities, some boys may become aggressive and actually pose a physical threat. Often participants (50%, 5/10), described males as “aggressive” or “rough”. For example, when explaining why she believes boys and girls should participate in activities separately Rebecca said, “Cause some boys and girls aren’t the same. It’s like you’re playing, such as a mouse playing a bear”. The fear of being overpowered or even injured when participating in competitive physical activities with males was also mentioned by Vanessa who said she would not want to play a sport with boys because “they get pretty aggressive if you’re playing on the same team”. She said in that situation she would opt out of the game and “let them do all the work”.

While the belief that competition in a coed physical education setting was unpleasant and could potentially be physically or emotionally damaging to girls is disturbing, for the girls in this study same-sex physical education negated these concerns. For example, when discussing the role of competition in physical education Amanda said, “I feel like girls and boys should have separate PE classes all in all. Just because, just from the experiences I’ve had here, it brings out the better, competitive side in girls whenever they’re just with girls and they’re not distracted by the boys.”

Although the majority of girls (80%, 8/10) preferred competition and felt their own physical education environment to be a safe and comfortable outlet for it, a large percentage (60%, 6/10) stated that there is an acceptable level of competition. For example, although Pickleball was often discussed in a positive light, Morgan offered another viewpoint when she said, “Some people do get really, really, into it. Like when we were playing Pickleball, I got like really into it too, and it’s to the point to where it’s not fun cause you’re just trying too [hard]... I mean, I like to be competitive and win and stuff, but I wanna have fun doing it.” Michelle also suggested that there is an acceptable level of competition and commented, “if you don’t have competition it’s not really that fun, but if you have too much competition then people get mad and it’s just a lot a stupid stuff going on.” When describing the acceptable level of competition for physical education, participants discussed negative aspects to either not having enough competition or being immersed in an overly competitive environment.

The physical education classes the participants were enrolled in were described as “not really competitive” and Dee commented, “I feel like half the class is competitive”. For half of the participants (50%, 5/10), a lack of competition was perceived negatively and they expressed a desire for more competition. If there appeared to be a lack of competition in particular sports

(e.g. basketball or badminton) that were intended to be competitive, the girls who were self-described to be “taking the game seriously” expressed a sense of frustration. Participants mentioned that in basketball there were other students who “really didn’t care” or who were “lazy”. Dee provided an example from badminton and said, “When we were playing badminton I had this team that was just... it was a really bad game, we were killing them and they weren’t even paying attention...it was so boring.” For Vanessa, when others were not “taking it seriously”, she wasn’t able to “get a good game”. Competition was valuable to both Vanessa and Morgan because they viewed it as a means for not only enjoyment, but also personal improvement. When discussing some of her experiences in basketball Vanessa said, “They’re [other students] no challenge, so there was no competition for us to play against to help us get better or to help them play better.” Morgan had similar feelings and talked about how competition was something where “you’re gonna push yourself harder” and with more competition “you can get better”. In addition, Alicia had a similar perspective and used basketball as an example of where she would like to play against more competitive students because “you’d be able to actually play instead of having people struggle with certain aspects of the game”. Dee also viewed competition as “fun” and saw it as a tool to improve her own skills. She gave an example of an episode during the recreational unit where she was playing ping pong with one of her friends. She said, “We kindof like, joked mean to each other and so we were playing harder and hitting the ping pong like, trying to get better to show each other up.”

Although a desire for more competition was often expressed, there were also negative feelings associated with excessive competition. For Michelle, too much competition would be “kindof scary almost, if you don’t really know what you’re doing”. She described a lesson when her ninth grade class was playing Mat Ball against another class of seniors. Although she knew

what she was doing, the game was still “scary” because the older girls were “giving us [the ninth grade class] bad looks like we didn’t know what to do and it was just bad”. She referred to this episode as “not fair” and the other students as “over the top in PE”. Field notes from of this lesson confirm that the older class was more skilled and more competitive than the younger group. The ninth grade students lost the game by a significant amount and they became less engaged as the game continued. One of the ninth grade students was even overheard asking the teacher “Can we stop yet?”. Reflective field notes describe the class to be “losing by quite a bit” and state the girls “end up just looking defeated”. Thus, even in a same-sex setting competition has to be at an acceptable level to be enjoyable for students.

Overall, there was a general theme that competition was enjoyable when experienced in a safe and positive environment and during appropriate activities. However, it is possible for there to be either a deficit or excess of competition. Therefore, there should be “a little bit” or appropriate amounts of competition in physical education in order for it to be viewed as enjoyable and valuable.

## APPENDIX F: COPY OF IRB APPROVAL FORM

### Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.



Institutional Review Board  
Dr. Robert Mathews, Chair  
203 B-1 David Boyd Hall  
Baton Rouge, LA 70803  
P: 225.578.8692  
F: 225.578.6792  
irb@lsu.edu | lsu.edu/irb

- Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-E, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at [http://appl003.lsu.edu/osp/osp.nsf/\\$Content/Humans+Subject+Committee?OpenDocument](http://appl003.lsu.edu/osp/osp.nsf/$Content/Humans+Subject+Committee?OpenDocument)
- A Complete Application Includes All of the Following:
  - (A) Two copies of this completed form and two copies of parts B thru E.
  - (B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1 & 2)
  - (C) Copies of all instruments to be used.
    - If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
  - (D) The consent form that you will use in the study (see part 3 for more information.)
  - (E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB.  
Training link: ( <http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp>.)

1) Principal Investigator: Emily K Beasley Rank: Instructor Student\*? Y/N Y

Dept.: Kinesiology Ph: 225-574-5714 E-mail: beasley@lsu.edu

2) Co Investigator(s): please include department, rank and e-mail for each  
If student, please identify and name supervising professor in this space

Alex C. Garn, Kinesiology, Assistant Professor, [agarn@lsu.edu](mailto:agarn@lsu.edu)

3) Project Title: Physical self-concept and the environment in physical education

4) LSU Proposal?(yes or no) No If Yes, LSU Proposal Number \_\_\_\_\_  
 Also, if YES, either ☐ This application completely matches the scope of work in the grant  
 OR ☐ More IRB Applications will be filed later

5) Subject pool (e.g. Psychology Students) High School Students  
 • Circle any "vulnerable populations" to be used: children <18 the mentally impaired, pregnant women, the aged, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature Emily K. Beasley Date 2/24/12 (no per signatures)  
 \*\*I certify my responses are accurate and complete. If the project scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

\*\*\*Effective August 1, 2007, all Exemptions will expire three years from date of approval, unless a continuation report, found on our website, is filed prior to expiration date\*\*\*

Screening Committee Action: Exempted ☒ Not Exempted \_\_\_\_\_ Category/Paragraph I

Reviewer Landon Signature Landon Date 2/28/12

Study Exempted By:  
Dr. Robert C. Mathews, Chairman  
Institutional Review Board  
Louisiana State University  
203 B-1 David Boyd Hall  
225-578-8692 | [www.lsu.edu/irb](http://www.lsu.edu/irb)  
Exemption Expires: 3/11/2015

IRB# ES88 LSU Proposal# \_\_\_\_\_  
☒ Complete Application  
☐ Human Subjects Training

## VITA

Emily Kristin Beasley was born in Elk City, Oklahoma and grew up in Winfield, Alabama. Following the completion of her B.S. degree in Elementary Education from Mississippi State University, she finished her M.S. in Health Education from the Mississippi University for Women. She has taught fourth grade in Charlotte, North Carolina and third and fourth grade physical education in Jackson, Mississippi.

Emily's true passion is teaching, and she is currently an instructor at Louisiana State University where she serves as program coordinator for the Health and Physical Education Certification Program. She is also an active board member of the Louisiana Association for Health, Physical Education, Recreation, and Dance (LAHPERD) and received the organization's Taylor Dodson Young Professional Award in 2012. Emily is involved in the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), Southern District of AAHPERD, the American Educational Research Association (AERA), the Association for Applied Sport Psychology (AASP), and the National Commission for Health Education Credentialing (NCHEC), through which she is a Certified Health Education Specialist (CHES).

In her free time, Emily is involved in a variety of sports and activities and enjoys running, playing softball, practicing Yoga, and spending time outdoors. She is an avid equestrian and looks forward to continued participation in Eventing competitions where she competes in Dressage, stadium jumping, and cross country phases.