Adolescent Females' Self-Concept and Physical Education:

A Q-Sort Analysis Survey

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Abstract

This research illuminates the relationship between female adolescents' self-concept and their experience of physical education. This was accomplished through three stages of interviews and a Q-sort. The topics through which the research was categorized included peer support, teachers as significant others, meaningful connections to the body, and curriculum content. During stage one female physical education specialists, curriculum coordinators, and adolescents were interviewed to develop Q-items for the Q-sort. The second stage involved two groups of females between the ages of 12 and 14 years who participated in the Q-sort. The final stage involved an insight group that consisted of four Q-sort participants who interpreted the highest ranking Q-items. Critical to this research was giving these adolescents the opportunity to voice what was important to them.

The results of the research included descriptions of the elements in physical education that were deemed most important by female adolescent students. The topics of "peer support" and "meaningful connections to the body" were ranked the highest. By interpreting the rich insights of the discussion group, it was found that peers were most influential to these young girls. Perceiving and bestowing respect were imperative in this stage of their lives.
Acknowledgments

A journey is a person in itself: no two are alike. And all plans, safeguards, policies and coercion are fruitless. We find after years of struggle that we do not take a trip; a trip takes us.

John Steinbeck (1902-1968)

This study has been a journey; a journey of creativity, thoughts, struggles, and triumphs. Without the female adolescents who took the time to either have an interview, do the Q-sort, or sit and have an enlightened conversation with me this study would not be complete. Your time and effort are appreciated.

My deepest gratitude is bestowed upon Nancy without whom this journey may not have taken place. For your time and insight, I thank you.

To my parents, I thank for all of their love and support over the years. Mon, I could not have completed this trip without your encouragement and friendship.

My best friend, my husband Norm. Your undying love and persistence lit the path for me when the road was dark. Your sacrifices allowed this journey to be complete and I anxiously await the future travels of our lives and relationship.
Table of Contents

Abstract .................................................................................................................. ii
Acknowledgements .................................................................................................. iii
List of Tables .......................................................................................................... vi

CHAPTER ONE: THE PROBLEM .............................................................................. 1

  Problem Statement ............................................................................................... 5
  Intent ...................................................................................................................... 6
  Rationale ............................................................................................................... 6
  Definition of Terms ............................................................................................... 8
  Limitations ........................................................................................................... 11
  Delimitations ........................................................................................................ 11
  Assumptions ......................................................................................................... 12

CHAPTER TWO: REVIEW OF RELATED LITERATURE ........................................ 13

  Self-Concept ........................................................................................................ 13
  Adolescence ......................................................................................................... 26
  Adolescence and Self-Concept ............................................................................ 29
  The Effect of Physical Education upon Self-Concept .......................................... 32
  Gender Issues ....................................................................................................... 42
  Self-Concept Testing Instruments ....................................................................... 48

CHAPTER THREE: METHODOLOGY AND PROCEDURES ................................. 52

  Type of Study ...................................................................................................... 52
  Q-Methodology ..................................................................................................... 52
  Foundations ......................................................................................................... 57
  Participants .......................................................................................................... 57
  Procedures ........................................................................................................... 59
  Inconvenience to Participants ............................................................................. 69
  Data Interpretations ............................................................................................. 69

CHAPTER FOUR: FINDINGS AND INTERPRETATIONS .................................... 71
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1:</td>
<td>Data Collection and Procedures</td>
<td>60</td>
</tr>
<tr>
<td>Table 2:</td>
<td>Q-item Ranking</td>
<td>71</td>
</tr>
<tr>
<td>Table 3:</td>
<td>Topic Q-Item Rankings</td>
<td>74</td>
</tr>
<tr>
<td>Table 4:</td>
<td>Most Important to the Participants (Overall)</td>
<td>76</td>
</tr>
<tr>
<td>Table 5:</td>
<td>Least Important to the Participants (Overall)</td>
<td>77</td>
</tr>
<tr>
<td>Table 6:</td>
<td>Most Important to Johnsberg Senior Elementary School Participants</td>
<td>79</td>
</tr>
<tr>
<td>Table 7:</td>
<td>Least Important to Johnsberg Senior Elementary School Participants</td>
<td>80</td>
</tr>
<tr>
<td>Table 8:</td>
<td>Most Important to Olar Creek Senior Elementary School Participants</td>
<td>81</td>
</tr>
<tr>
<td>Table 9:</td>
<td>Least Important to Olar Creek Senior Elementary School Participants</td>
<td>82</td>
</tr>
<tr>
<td>Table 10:</td>
<td>Intrinsically Validating Q-item Rankings</td>
<td>84</td>
</tr>
<tr>
<td>Table 11:</td>
<td>Extrinsically Validating Q-item Rankings</td>
<td>85</td>
</tr>
</tbody>
</table>
It may be said that there are children feeling alienated from their classmates and the joys of movement as a result of physical education classes. Students are teased because of their perceived lack of physical ability. They are not chosen by peers to participate during a team or partner activity, and it may be common for them to try desperately not to participate for fear of humiliation. Many of these students do not continue to participate in physical education once it becomes an option. This may factor in a segment of the population that is emotionally challenged with low self-concepts.

My post secondary education has given me the knowledge to critically analyze physical education teaching situations. Recently I observed a grade 7 physical education class. The class encompassed all of the characteristics that make children dread going to physical education (Kirchner, 1992; Sherrill, 1986). In the gymnasium 30 children were lined up behind a high jump stand. The physical education teacher placed the bamboo pole between the stands, then backed away from the equipment and described the procedure for the class. Those children who successfully completed the jump required would remain in the line to attempt a more challenging jump. Those who failed to complete the jump would sit on the sidelines for the remainder of the
class. The students who missed the initial jump were told that they would receive a failing grade for this segment of the class. As the bar moved higher on the stands so did the students' grades, and so did the number of students sitting on the side observing others' participation.

Observing these children's eyes showed more about this class than one could imagine. Some of the children's eyes lit up with excitement, others showed boredom, and others anxiety. Those students who were excited likely felt comfortable with their ability since they could successfully jump over the bar. Some bored children were highly skilled as they appeared to find the class tedious, eager for a challenge. I felt most compassion for those who had not yet acquired the skill to perform these jumps, and they appeared to be ashamed and embarrassed. After all, the entire class watched as one either passed or failed.

According to Sherrill (1986), Kirchner (1992), and Pallett (1965), the adaptation of a task to meet the individual needs of the students is imperative for an effective physical education class. Numerous high jump stations where students are permitted to adjust the height of the bar according to their ability engages all students. Pallett (1965) stated that "it is the weak teacher who will set the girls to work and leave them- they will soon get bored . . . but the good teacher will guide and lead the girls into discovering ways of moving and
achieving skill" (p. ix). By understanding individual differences, an educator who implements open-ended teaching methods allows students to work at their own level. Problem solving and exploration encourage self-discipline and self-direction, which also assist the learner in understanding their bodies and their capabilities.

I was exposed to various physical education teachers as a student. Being an athlete, I enjoyed all physical education classes, yet in some classes I witnessed peers who hated physical education. These students would find any excuse not to participate for fear of humiliation. Since I was athletic, I was confident in my ability and I did not experience the emotional pain that these students did. When peers chose classmates for their teams, these students were the last ones chosen. If students were not able to perform a sport-specific skill successfully, this resulted in their exclusion. These were not uncommon practices that occurred in our gymnasium; these experiences had to have affected these children.

Physical education, by nature, does not create the environment that causes this distress; it is the environment created within physical education. Conceptual analysis, social growth, holistic learning, self-awareness, and self-worth are only a few of the ideologies of movement education. As a movement educator, I create a physical education environment that encourages healthy living and the
development of physical, social, and cognitive skills through a problem-solving orientation. This type of welcoming environment is imperative in any physical education class, especially an adolescent one.

Adolescents progress through many changes: physical, emotional, and social. Covey and Feltz (1991) stated that as most individuals travel through adolescence it is characterized by "emotional stability, psychological well-being, and a smooth transition into adulthood" (p. 464). Many individuals and authors disagree with this statement; Newell, Hammig, Jurich, and Johnson (1990) considered adolescence as a time of confusion and uncertainty. Since this is a time of change and development, personal relationships are extremely important (Offer, Ostrov, Howard, & Atkinson, 1988). There are many individuals who influence these changes; a teacher is one (Burns, 1982; Oosterwegel & Oppenheimer, 1993; Pekrun, 1990). Teachers have a strong relationship with adolescents; therefore they may influence their development. According to Newell et al. (1990), there is no other time during one's life when the need for acceptance by others is as strong. Since adolescence is a critical time in an individual's development, and teachers have a strong relationship with students at this stage in their lives, it would be beneficial to understand how the educators affect the adolescents' development.
Physical education teachers affect the physical competency and cognitive understanding of their students, which in turn may affect the personalities of their students. Dishman (1986) stated that the self-concept encompasses aspects of all of these domains. According to Gallander Wintre and Crowley (1993) the "self-concept is a dominant agent of the individual's motivational system and a basis for human action" (p. 371). In order to determine how educators affect their students holistically, it appears logical to study the self-concept of the learners. The effective and ineffective educator may affect the development of the adolescent's self-concept; the primary question is how the self-concept is affected.

Problem Statement

The purpose of this study was to determine how physical education affects the adolescent female's self-concept through peer support, teachers as significant others, meaningful connections to the body, and the physical education curriculum.

The following are the research questions derived from this statement:

1. What is the relative importance of each of these variables to the female adolescent?
2. What is the relationship between the physical education teacher and the female adolescent?

3. How does this relationship affect the adolescent's self-concept?

Intent

The purpose of this research was to explore how physical education affects the female adolescent's self-concept. Through dialogues and further investigation with educators and adolescent females, my goal was to enhance my understanding of the self-concept and thus, my effectiveness as an educator.

Rationale

The rationale for this study on the effect of physical education upon the female adolescents' self-concept stemmed from three basic notions. One was that educators affect their students' self-concepts. The second was that the academic merit of physical education is continually under attack. Third, every state of the adolescent developmental continuum is worthy of attention, as adolescents progress through many changes in a very short time.

The issue of educators' effectiveness crosses all subject boundaries and teaching environments. One may ask, "Why choose
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physical education to examine teacher effectiveness and adolescents' self-concept?" In the gymnasium the body is a powerful medium in and through which learning occurs. It is what encompasses the self. According to Pallett (1965),

A HUMAN being has a body, concerned with practical actions; a mind, concerned with thinking; and feeling or emotion, concerned with expression. It is impossible to separate one from the others, though in certain situations one aspect may be more involved. (p. 1)

I believe that the body and the mind encompass the whole. In order to enhance learning, the teacher must consider every aspect of the student, and physical education promotes this type of learning. Wall and Murray (1994) and Kirchner (1992) included promoting self-worth and self-esteem as one of many goals of physical education.

The literature available on the development of adolescents' self-concept has focused on the effects of physical activity. There is a lack of literature on female adolescents' self-concept development and how it is interrelated to physical education.

There is a lack of commonality in defining the terms "self-concept" and "adolescent". The inconsistency in terminology served as motivation for this study. The various definitions may be
When the time is right, we can begin to prioritize the integration of renewable energy sources into our daily lives. This transition is not only necessary for the health of our planet, but it also offers opportunities for economic growth and job creation.

In the face of climate change, it is crucial that we take action now. The scientific community is unanimous in their call for drastic changes in our approach to energy production and consumption. The Paris Agreement, signed by 196 countries, sets a clear framework for reducing greenhouse gas emissions and limiting global warming to well below 2 degrees Celsius.

Governments around the world are beginning to take notice of these needs, and we are seeing a shift towards more sustainable practices. This shift is not only driven by environmental concerns but also by the recognition that it is economically viable.

As individuals, we can take steps towards a greener future by adopting renewable energy practices in our daily lives. From using solar panels to install solar panels on rooftops, to choosing to walk or bike instead of driving, every small step counts.

Together, we can create a world that is cleaner, healthier, and more sustainable. Let us continue to work towards a future where renewable energy is the norm, and fossil fuels are a thing of the past.
representative of the numerous countries in which this subject has been published.

The literature is dominantly American. There are publications from England, Australia, Germany, Nigeria, Greece, and Israel, however; the Canadian literature is minimal. Each educational system differs; therefore a Canadian focus would be beneficial to our educators.

Most of the research polarizes the genders and seeks differences between males and females. Thus, this study focused entirely upon the adolescent female. This research has set the path for a future study on adolescent males and an inquisition into the genders' similarities, rather than their differences.

Definition of Terms

The following definitions were developed by the researcher.

Adolescent: According to the western world, an adolescent is an individual at the stage of life between childhood and adulthood. It is characterized by physical, emotional, and behavioural changes, which lead to a degree of independence from parents and then adults. Puberty generally marks the entrance into adolescence. The age at which puberty begins and ends varies with each individual. For the purpose of this study adolescents will range between 12 and 14 years old.
Extrinsic Validation: Achieving a positive emotional state through lived experiences which involve an outside agent; either another individual, an environment, or an activity. For example, someone or something other than I, make me feel good about myself.

Intrinsic Validation: Through lived experiences, in which the self is the sole determinant, establishing a positive emotional state and enhanced motivation. For example, my own actions make me feel good about myself.

Physical education: Physical education is a holistic academic subject within the curriculum. It assists in the development of the mental, physical, and emotional realms of the student. It also influences the health and the general well-being of the students who participate.

The goals of physical education were identified by Kirchner (1992).

1. Physical education has a unique, but not exclusive role to play in the education of children. This role is two-fold - to enhance children's physical fitness and well-being and to teach them a wide variety of motor skills.
2. Physical education, through its activities and experiences, can and must contribute to the shared goals of education, such as enhancing self-direction, self-esteem, and cooperative behavior.
3. Physical education should be an enjoyable and satisfying experience for every child. (p. 6)

**Q-sort technique:** A means of studying humans' behaviours, attitudes, personality, social interaction, and self without using any formal tests or scales. This methodology was developed by Stephenson in 1953. The Q-technique requires the participant to rank or “sort” descriptors on a continuum that reflects how the individual perceives the importance of these descriptions.

**Self:** A cognivite construction that is functional in bringing organization and meaning to one's experiences (Harter, Whitesell, & Junkin, 1998, p. 654).

**Self-concept:** Identifiable characteristics of the self which are continually developing through labeling traits and behaviours in a negative or positive manner. The self-concept is affected by significant others' feedback, communication to the individual, and the environment. Therefore it is a learned construct. Sociological, psychological, and physiological realms are incorporated into the development of one's continuum-based, multidimensional self-concept.

**Self-validation:** Achieving feelings of success and encouragement through lived experiences to help maintain or enhance one's self-concept.
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Limitations

1. All of the participants were female.
2. Only four physical education specialists, four curriculum coordinators, and four adolescents were interviewed to develop the Q-sort.
3. Only two different schools were included within one Board of Education.
4. Only one class from each school participated in the study.
5. All of the Q-sort participants were aged 12 to 14.
6. The Q-sort was performed during June, the last month of school.
7. The insight group was comprised of only four adolescents, all of whom were 14 years of age.

Delimitations

1. The Niagara region may not contain a truly diverse cultural and ethnic background within its population for this study to be generalized to all regions.
2. To create a manageable study, variables had to be confined. Only female adolescents were included in this work.
3. Volunteers were involved in the insight group.
Assumptions

1. The self-concept is developed through socialization in the home and the community as well as through the school environment.

2. When conducting interviews and questionnaires the researcher believes that the participants are answering truthfully.

3. Participants' perceptions may differ.

This introduction served to develop the purpose and foundation for the study. Thus, the reader should appreciate the background upon which this research was developed. In order to understand this topic more clearly, an extensive literature review follows this chapter.
CHAPTER TWO: REVIEW OF RELATED LITERATURE

There is an abundance of literature on self-concept; however, there are many inconsistencies within the research. This review is presented as an overview of the relevant literature for this study. The topics proceed as follows: self-concept, adolescence, adolescence and self-concept, the effect of physical education upon self-concept, gender issues, and self-concept testing instruments. Literature is reviewed, connections are made between authors, and some conclusions are presented.

Self-Concept

The definition of self-concept has been inconsistent in the literature available. Di Tomasso (1987) stated that self-concept is perhaps one of the oldest research topics. With this much history, one would expect some consistency; unfortunately, that has not been the case. Researchers in this field cannot agree on the validity of the subject for research. Some researchers have maintained that the idea of a self-concept is merely a fad. According to Damon and Hart (1988) there are some individuals in "extreme but currently influential positions [who] have maintained that self-concept is nothing more than an ephemeral epiphenomenon" (p. 109). This statement may have
merit; however that does not mean that self-concept may be dismissed. This author did not take into consideration the development of the self-concept nor how it affects the individual. With this type of influence, serious researchers have been encountering barriers to their work.

A barrier in the realm of self-concept research has been the variation in terminology. Many authors used different terms when they discussed “self-concept”. Marcia (1980) and Erikson (1968) used the term “identity” interchangeably with self-concept. However, Damon and Hart (1988) coined the term “self-understanding” and used it in combination with self-concept for their research. “Self” is yet another term that has replaced self-concept; Offer et al. (1988) established the self as a key construct of psychology. According to their research the term “self” is from the Greek word psyche which is the essence of life. Once again, Offer et al. did not distinguish between “self” and “self-concept”, but used the terms interchangeably.

The early research of Hendry (1978) included the term self-concept. He bifurcated the self and the body which created different concepts within one individual. The concept of the self in general was the self-concept; the concept of the body was the body-image. More current literature used various terms interchangeably with self-concept. These include self-confidence, self-worth, self-ideal
congruence, and self-esteem. It is understandable why there is no universal definition of self-concept when there have been so many alternative terms used.

The definitions of self-concept are as numerous as the published research. Salokun (1990) presented definitions of self-concept from earlier research. Rogers (1974) defined self-concept as "the sum total of all the characteristics a person attributes to himself or herself and the positive and negative values he attaches to those characteristics" (p. 122). Other definitions that Salokun presented were very similar. The self is the central aspect of the personality and the image that we form is based upon our beliefs of ourselves. Both of these aspects were found within the definitions.

In the 1960s the research was more abstract from what has been presented. Renowned researcher, Erik Erikson showed how self-concept or "identity" could be defined by the individual. He stated the individual would have to project "one's diffused self-image on another and by seeing it thus reflected and gradually clarified" to define one's identity (1968, p. 132).

In the early and mid 1980s the definitions became increasingly broad. Marcia (1980) stated that "identity refers to an existential position, to an inner organization of needs, abilities, and self-perceptions as well as to a sociopolitical stance" (p. 159). Another
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broad definition was written by Burns (1982), who described the self-concept as "a set of subjectively evaluated attributes and feelings" (p. 5). He also mentioned that the role of the self-concept included maintaining consistency, interpreting experiences, and establishing expectancies. Dishman's (1986) definition was informative:

Self-concept is our ordered awareness of personal experiences, behaviors, and social interactions. It defines us in comparison with others and with our past behaviors and future goals. We form specific self-concepts for major roles and abilities in life (e.g. academic, social, emotional, and physical), while our overall or global self-concept is a weighted composite of these specific self-concepts. (p. 317)

This definition described how the self-concept was devised, and displayed multidimensional self-concept which was typical of the definitions of the 1990s. Granleese, Turner, and Trew (1989) supported Dishman's perspective. They did not believe that one could totally understand the self-concept if it were viewed as unidimensional.

The multidimensional self-concept definitions of the 1990s were abundant. Salokun (1990) defined self-concept as the way individuals perceive themselves and their behaviour through two dimensions of the self-concept, physical and psychological self-images. Oosterwegel and Oppenheimer (1990) stated that the self-concept was multidimensional
and therefore consisted of various self-concepts. A list of the components would have benefited further comparisons. Marsh (1993) affixed the notion that the multidimensional self-concept was hierarchically organized. The hierarchy was supported by Orr and Dinur (1995) but neither publication detailed the hierarchy. Maslow's (1954) hierarchy of needs would be useful as a guide for the self-concepts, as it would establish links between the various self-concepts and the needs of the individual.

Since there were many varying definitions of the term "self-concept", it was imperative for the researcher to develop a clear and coherent definition prior to research. The multidimensional aspect of the self-concepts and whether they are hierarchically based will be discussed in the section on the structure of the self-concept.

Structure of the Self-Concept

The notion of a multidimensional self-concept is varied. Many authors agreed that there was more than one component to the self-concept, yet there were discrepancies regarding what constitutes these components.

Self-concept was divided into academic and nonacademic self-concepts by many researchers. Marsh and Peart (1988) described the academic component to include English and mathematics. The
nonacademic aspect of the self-concept included social, physical, and emotional realms. Marsh (1993) proceeded to divide the physical dimension into two additional areas, the physical ability self-concept and physical appearance self-concept. One dimension was based on perceptions of ability and the other on perceptions of aesthetic appearance.

The division of the body and mind was a recurring theme. Dishman (1986) also divided the self-concept into academic, social, emotional, and physical realms. This division was steadfast in the more current literature as well (Oosterwegel & Oppenheimer, 1993). Many others did not make the distinction between the body and mind as significant as Marsh and Peart (1988). If these self-concepts were to be hierarchically arranged, it would be interesting to see which would receive priority.

Each self-concept was on a continuum, according to Oosterwegel and Oppenheimer (1993). Along the continuum were self-descriptions which began with general descriptions at one end and became situation specific at the other. These descriptions differed in importance along the continuum. A self-description was deemed important when it was “working” and those that were not functioning were “peripheral”. This suggested the basis for dormant self-concepts. According to Harter (1990) the adolescent has different selves in different social settings
which creates a challenge when utilizing self-descriptions. The self-concepts were apparent as the environment and situation required; thus, the continuum was dynamic as the self-concepts adjusted to the demands of the moment.

Also present in the literature was another aspect of the multidimensional self-concept. Oosterwegel and Oppenheimer (1990, 1993) and Burns (1982) substantiated that there was a real (actual or cognized) self, an ideal self, and an ought-to-be or other self. The "actual self", according to Oosterwegel and Oppenheimer (1990), was a set of characteristics individuals ascribed to themselves. The "ideal self" was the list of characteristics an individual would like to possess. What a person thinks he or she should be was the "ought-to-be self". Burns (1982) stated that each one of these selves incorporated the physical, social, academic, and emotional self-concepts within them. These other selves were perceived by the individual. For the purpose of this study, the "real self" was studied with its multidimensional self-concepts. The aspect of perception is key in the development of the self-concept and is dealt with separately.

**Perceptions**

Perceptions play a key role in the development of the individual’s self-concept. To perceive something is to gain knowledge about it
through one's senses. Equally important is how the individual perceives others. Oosterwegel and Oppenheimer (1993) stated that the closer the child aged to 12 years old, the more important his or her perceptions. Individuals became more aware if they were meeting the expectations of significant others; this affected how individuals perceived themselves, which in turn affected the self-concept. Perceptions do not have more importance as one ages, as Oosterwegel and Oppenheimer (1993) have cited.

If support has been perceived by the individual, generally he or she will equate that to mutual support from other factions (Orr & Dinur, 1995). For example, if a student performed well at school and the teacher supported the student, then the student would equate this with his or her parents being pleased. This was an aspect of self-concept formation. These perceptions, according to Burns (1982), enhanced the belief component of the self-concept, which was the self-images that were portrayed by the individual.

Di Tomasso (1987) made a connection between perception and the hierarchy of the self-concepts. Individuals must have a clear perception of reality and the real self to develop a hierarchy according to Di Tomasso. The hierarchy needed to be defined more clearly and the various levels detailed in order to establish its significance in self-concept structure.
Children organize their self-concepts around social experiences. Katona-Sallay (1990) described interperception, or perception as a product of social interaction. Pekrun (1990) stated that an individual's self-esteem (concept) was dependent on perceived support from the family. These examples of the importance of perception dealt with the social and emotional self-concepts. Also affected was the physical self-concept. Dishman (1986) and Weiss (1986) discussed self-perceptions of physical ability and how it positively affected the physical self-concept. Academic self-concept would follow the same path. The perception of ability was essential in the development of those concepts.

Formation of the Self-Concept

Orr and Dinur (1995), Lavoie (1994), Gallander Wintre and Crowley (1993), Offer et al. (1988), Harter, Stocker, and Robinson (1996), and Burns (1982) addressed the influence that family, peer groups, and schools had on the development of the self-concept. This influence derived from interaction between the parties. A study examined by Oosterwegel and Oppenheimer (1993) showed that generally the family context for the self was perceived as more passive than the school context. This statement held true across age, gender, and response modalities. Gallander Wintre and Crowley (1993)
found that the network of social support provided an essential foundation for the development of the self-concept. Therefore, differing aspects of the self-concept were developed in the various settings and with the various significant others.

Gallander Wintre and Crowley (1993) cited many studies that distinguished between friends and classmates as peers, and their influence on self-concept. They found that the classmates had more influence. Oosterwegel and Oppenheimer (1990) agreed that the family, peers, and school interactions assisted in the development of the child's self-concept. They did not make note of any distinction between friends and classmates. To establish a healthy self-concept, a distinction between how the individual felt and how he or she thought that others felt must be made.

From approximately age 6, according to Oosterwegel and Oppenheimer (1993), the actual and ideal self-concepts were forming. By the age of 9 the difference between the real self-concept and the others (ideal and ought-to-be) should be mastered. Around 8 to 10 years old there was a sudden shift in the individual's perceptions. The perception of themselves would vary from their parents' perception of them. After 12 years old, individuals' ideal self-concept, as a result of their relationship with their parents, was still intact. However their ideal self-concept from their relationship with their peers began to
disappear. Harter (1990) attributed self-judgement to the reliance on social comparison, social similarities and normative standards. Burns (1982) stated that the main aim of self-concept formation was the shift from external reinforcement to internal self-reinforcement, which takes time and maturity.

The development of the child's personality, as well as the personality traits of those who interact with the child, assisted the formation of the self-concept. According to Katona-Sallay (1990) these two elements became identifiable through social comparisons. Oosterwegel and Oppenheimer (1993) described the three elements that influenced the social environment for self-concept development within any situation. They included the characteristics of the other person, the characteristics of the individual, and the characteristics of the situation. Essentially, if the other person's characteristics did not parallel the individual's for the given situation, then the formation of the self-concept would be affected to a differing degree than if the characteristics were similar. For example, if a passive student were being bullied by a peer the self-concept would be affected differently than if the same student were interacting with a supportive classmate.

There were three factors that influenced the formation of the self-concept according to Oosterwegel and Oppenheimer (1993). The first was the amount of information that was involved in the
interaction. The second was the consistency of the information passed on to the individual. The last was the ease of interpretation and integration of the information.

Di Tomasso (1987) described different influences on the development of the self-concept. The three aspects included: (a) the experience, particularly that which generated positive feelings and a sense of worth and value, (b) proficiency in areas that were valued by significant others and the individual, and (c) the realization of the individual's real potentialities by him or herself. The influences described by Di Tomasso were one sided as they tended to lean toward developing a positive self-concept. Interaction with significant others may also negatively influence the development of the self-concept.

This literature review revealed that various components were established as having some part in the formation of the self-concept. Elements, influences, and factors were included. The first group of influences were from interactions with friends, family, and schools. The second set of influences included the actual experience, proficiency in the area valued by a significant other or by the individual, and the realization of their potential. There was an obvious connection between the influences on self-concept. Individuals' perceptions play a key role in the formation of the self-concept. One group of influences included the individual; the other only mentioned interactions with the
significant others. Since the individual's self-concept was being formed, then his or her personality would have a major role in that development. The proficiency that others view related directly to Burns (1982) influences from significant others. However, Di Tomasso (1987) incorporated the individuals themselves as an influence for the formation of the self-concept.

The elements presented by Oosterwegel and Oppenheimer (1993) reflected a more holistic view of the self-concept formation. Like Di Tomasso (1987), these researchers cited that the individual, others, and the situation influenced the self-concept. Oosterwegel and Oppenheimer established that the characteristics of each of these elements persuade the self-concept development. Di Tomasso, however, incorporated perception with these elements without any mention of characteristics.

Burns (1982) described the interaction between the individual and significant others as influencing the development of the self-concept. Oosterwegel and Oppenheimer (1993) also included communication in their contributing factors; the interaction was the basis. The amount of information, the consistency of information, and the interpretation of information allowed for a more detailed understanding to be developed by Oosterwegel and Oppenheimer's readers.
The notion of changing one's self-concept was not widely researched. Damon and Hart (1988) cited research from both sides of this concept, as did Di Tomasso (1987). They cited studies that viewed self-concept as a stable entity throughout childhood and adolescence. Other studies showed self-concept changing as the participant aged; others still saw change up to age 11 or 12 when self-concept then became static. Lintunen, Leskinen, Oinonen, Salinto, and Rahkila (1995) established evidence of a decrease in some aspects of self-concept during preadolescence, while late adolescents and young adults showed an increase in aspects of self-concept. Harter (1990) stated that the self fluctuates over time and by the situation. Burns (1982) agreed that self-concept was not static. Changes were possible as a result of the ongoing process of psychological growth.

The formation of the self-concept is undoubtedly influenced by the interaction with significant others: family, peer groups, and schools. Situations and also the age of the individual affect the development of the self-concept.

Adolescence

Adolescence is cultural; the western culture is one of the few societies that even consider adolescence. Most cultures celebrate a "rite of passage" to mark the beginning of adulthood and loss of
childhood. This stage is characterized by psychological, sociological, and cultural influences, as well as physical change and development. Due to the discrepancies between cultures, a western stance will be viewed.

Just as there are many inconsistencies in the definition of self-concept, the term adolescent is plagued by the identical problem. Marcia (1980) found it difficult to study adolescents since there was a discrepancy in age. The age at which puberty begins and ends varied with each individual; some researchers did not view puberty as a factor for determining adolescence. Damon and Hart (1988) described adolescence as between the ages of 10 and 20. Katona-Sallay (1990) viewed young adolescents as having a mean age of 12. There is more to this population than just their age. One example would be their socialization experiences. As one turns a kaleidoscope the pieces fall into place to make a different picture every time. This is reflective of the adolescent. Each experience they have is representative of a turn of a kaleidoscope; their lived experiences alters themselves.

The commencement of adolescence, according to the western point of view, was when puberty begins. When adolescence ends was viewed differently. Offer et al. (1988) described the end of the adolescent stage of life as being when individuals have obtained a reasonable degree of independence from their parents. Salokun (1994)
characterized the adolescent stage of life as an abundance of energy which stimulated the individual into action. This physical change was accompanied with a psychological change. At that time, according to Zaichkowsky, Zaichkowsky, and Martinek (1980), the individuals became preoccupied with themselves. Adolescence was characterized by total physical and emotional readjustments of the self-concept.

Erikson (1968) summarized the term adolescent as: the last stage of childhood; adolescent process is complete only when the individual has subordinated his childhood identification to a new kind of identification, achieved in absorbing sociability and in a competitive apprenticeship with and among his age mates. These new identities are no longer characterized by the playfulness of childhood and the experimental zest of youth: with dire urgency they force the young individual into choices and decisions which will, with increasing immediacy, lead to commitments 'for life'. (p. 155)

This definition included what characterized adolescence and what must occur during the development of this stage of life. Erikson did not mention puberty or any specific age.

According to Meeus and Dekovie (1995) adolescence was the second period of separation that individuals go through. The first occurred between the ages of 1 and 2; this was when children realized
that parents were something "other" than their primary care giver. Adolescence was the second stage; this stage was more disengaging. Independence, making their own decisions, and a restructuring of their significant others were characteristics of the individual during this phase.

The development of the adolescent followed various paths. According to social-learning theory, the adolescents' development was a result of the social influences on them (Offer et al., 1988). Adolescents have internalized the rewards, punishments, and behaviour they have experienced. Orr and Dinur (1995) described adolescents as both victims and benefactors of their social environment. Adolescents were described as active participants in their development; their actions decided the pattern of growth.

The term adolescent was similar to self-concept because of the many differing definitions. According to Monaco and Gaier (1992) these years were of critical importance because the adolescent was susceptible to many different influences.

Adolescence and Self-Concept

The self-concept is malleable and was molded constantly throughout adolescence. Adolescents were bombarded with decisions and new responsibilities, their perceptions of personal abilities and
their attitudes towards themselves affected their identity development. Berzonsky and Neimeyer (1994) cited Erikson as stating the formation of a clear and stable self-identity or self-concept was the primary challenge of adolescence.

As adolescents socialize with others, these relationships become learning situations. Offer et al. (1988) characterized adolescents as showing an interest in friendships and developing empathy towards others. These characteristics would help establish a more realistic sense of self.

The significant others played an important role in an adolescent's life. The teacher, the parent, and the peer were continually interacting with the individual and were continually adding perceptions to the individual's self-concept. Pekrun (1990) detailed how the adolescent self-concept could be influenced by different social environments simultaneously. For example, home, school, and the community each affect the adolescent in a different manner.

According to Salokun (1994), the peer group became the main source of influence during adolescence. The peers became an avenue for prestige and status. Even though the peer appeared to have significant power over the adolescent, Offer et al. (1988) stated that adolescents had not forgotten what their family has taught them. Meeus and Dekovie (1995) disagreed and stated that adolescents had
no power over one another, and therefore their interactions were based on symmetry and equality. This equality was transferred into the parent-adolescent relationships as the adolescent matured.

The adults who were significant others may play a role in identity intervention. Archer (1989b) described this intervention as providing adolescents with the essential tools to assist in changing conditions to enhance the concept of self. The community also assisted the adolescents. By giving them a function and status within the community it enhanced the growth of their sense of self (Erikson, 1968). This status within the community would allow the adolescent to establish a more realistic self-concept than the one influenced by peers.

Since adolescence was an essential transition time, the self-concept would fluctuate. Offer et al. (1988) suggested that older adolescents would rely on their past experiences. They would also draw from others to enhance themselves without feeling diminished as a result. Oosterwegel and Oppenheimer (1993) described anger, defense, and withdrawal as major self-perceptions of middle adolescents. These feelings needed to be counteracted by positive self-concept boosts by influential people. According to Salokun (1994) the adolescent may experience a state of identity diffusion. This was a state of confusion during which many emotional and social problems
would plague the adolescent. Without assistance and direction the individual would develop low senses of self-concepts; as a result they would become more self-conscious. Williams (1986) described cognitive distortions and irrational thinking which resulted from negative talk and self-doubt. All of these traits may lead to anxiety and depression.

The developing self-concept of the adolescent was fragile. The adolescent's self-concept would grow and mature with the influences of parents, teachers, peers, and the environment. The adult significant others must establish positive environments of interaction for these youth. The self-doubt needed to be erased with self-confidence, and the self-consciousness with self-esteem. All of these were characteristics of a healthy, positive self-concept.

The Effect of Physical Education upon Self-Concept

Because the adolescents' self-concept was typically in a state of uncertainty, security was often sought in an environment which was comfortable and safe. This positive environment would enhance their sense of self; this environment may and should include a learning setting. Since the self-concept was composed of several dimensions, they should all be taken into consideration. The educational subject of
physical education encompassed all of the following aspects: intellectual, physical, emotional, and social.

Research on self-concept has typically dealt with physical activity, not physical education. According to Di Tomasso (1987) the psychology field has made links between behaviour and self-concept. If behaviour was a link to self-concept, then physical education should exemplify that connection; however, some researchers did not agree. Di Tomasso cited three studies that found global self-esteem (self-concept) and physical fitness to be unrelated in boys between the ages of 12 and 16. Marsh and Peart (1988) found self-concept and female athletes to have little relation. All of the above studies dealt with athletics to some degree. Coakley (as cited in Johns, 1990) reinforced this issue by stating that "simply playing a game or being involved in physical activity does not guarantee positive self-concept" (p.14).

Physical and mental fitness and social development were results of physical education. These studies reviewed only physical fitness instead of the holistic concept of physical education.

A physical education setting may be as demoralizing for an adolescent as any other environment. The individual who influenced that environment would determine if it was a positive or negative learning environment. The adolescent who was not physically inclined may have felt rejected and alienated in a class where the educator
focused on athletic ability. Salokun (1994) stated that an adolescent who fit this category was often treated with contempt by his or her peers. When students needed to be divided into groups for a lesson, it has been embarrassing and hurtful if the peers chose teammates. The same individual may have been chosen last and was left with feelings of self-doubt and self-consciousness. This was a result of class management rather than the nature of the subject matter.

Other studies conducted on self-concept and the physical have emphasized different components. Covey and Feltz (1991) reported that athletes have as high or higher levels of body-image, sense of well-being, self-acceptance, and sociability as those who were not athletes. They also cited that physical activity was found to positively affect emotional expression and control. Di Tomasso (1987) reported that four out of seven tests involving self-concept and physical activity resulted in a positive change in the self. The remaining three reported no changes to the self-concept. Di Tomasso cited the following studies that had positive effects on self-concept. Kay, Felker, and Varoz (1972) found a positive relationship with sports interest and parental interest. Folkins and Sime (1981) also noted that physical fitness improved self-concept. Granleese et al. (1989) cited a study that also dealt with enhanced self-concepts where the female athletes had significantly higher self-concepts in math,
opposite-sex relationships, and emotional stability. This research studied self-concept as a multidimensional aspect of the self. Rosenberg (1965) concluded that extracurricular participation had a positive effect on the self-concept. These results were numerous. Williams (1986) correlated physical skill and increased confidence. Shaw, Kleiber, and Caldwell (1995) stated that sports were a mental and physical challenge and therefore played an important role in identity development. Sherrill, Holguin, and Caywood (1989) established a correlation between increased levels of fitness in females and males and their self-concepts. There were numerous studies that represented a positive correlation between self-concept and physical fitness and activity.

Perception not only was key in the development of the self-concept, but it also influenced physical ability. Leonardson (1977) found that perceived fitness and self-concept were moderately but significantly correlated. Perceived levels of fitness resulted in favourable self-adjustment versus actual fitness levels. Weiss (1986) support the above findings with a study of her own; she found that perceptions of physical competence not only contributed to actual movement success but also to the students' participation. Seefeldt (1986) established that self-esteem could be enhanced with extended involvement in fitness activities. The increases and decreases in self-
concept may occur without the actual fitness levels of the individual altering. Seefeldt believed that reinforcing feedback could provide the influence needed to alter the concept. However, there was more to physical education than being or perceiving one was fit.

There needed to be more detailed research on the role of physical education in the enhancement of the self-concept. According to Salokun (1994), activities in physical education, such as relays and low organizational games, developed a sense of belonging within the students. Manipulative and locomotor competence enhanced a feeling of worth, body-concept, and self-concept. Orlick and Botterill (1975) agreed by stating that through physical activity children may have felt and seen improvement quickly; this improvement provided the backdrop for self-worth. Children should not be made to feel acceptable only when they perform well; a well balanced physical education class would avoid this.

Physical education had many attributes that would enhance the self-concept. Salokun (1994) believed that physical education established a sense of belonging. As skills increased, so did competence; this resulted in general feelings of worth and adequacy. Salokun established that physical education increased self-esteem, changed self-attitude, and enhanced the awareness of the real self. Other authors that agreed with these statements included Weiller
(1992), Kirkpatrick and Buck (1995), Johns (1990), and Bluechardt and Shephard (1995). Emmanouel, Zervas, and Vagenas (1992) completed research on this subject. Their results established a positive influence from physical education on social development. These results were consistent with the literature available.

There were differing views on whether physical fitness or high involvement in activity positively affected the self-concept. Current research on physical education is lacking. Many authors have based their views on the perspectives of others and not on substantiated data. In order for physical education to be considered as an important environment for enhancing the self-concept of adolescents it must be researched further.

Feedback and Self-Concept

Feedback from significant others laid the foundation for the adolescent self-concept development. Feedback is discussed here as it is a key element in teaching methodology for physical education. This section attempts to address how teachers can affect the self-concept of their students.

Katona-Sallay (1990) described feedback as behaviour modifying and self-image altering. Burns (1982) established that the individual's interpretation of the information would determine the effect of the
feedback. The adolescent, according to Salokun (1994), needed support. This made the individual vulnerable to evaluative feedback. Changes in the self-concept of the individual may occur based on feedback received.

The adolescent received nonverbal feedback from a variety of settings, according to Seefeldt (1986). In the gymnasium, this feedback may have occurred without any change in the individual's physical competence. For example, if stations were set up in a physical education class for a level that was too difficult for a student, and there were no alternatives, this student might not be inclined to participate, for fear of humiliation. This resulted in self-doubt, negative talk, and a decrease in self-concept of ability for the student. Reinforcing positive or negative feedback may alter the self-concept of the adolescent in a physical education class. The adolescents' roles changed depending on their environment: school, home, or with their peers. At times the feedback they received could be contradictory. The self-concept would fluctuate depending on the situation that the individual was in. Therefore, the more stable and developed the self-concept, the more easily conflicting feedback can be dealt with.

Verbal feedback was vital in the gymnasium. In some physical education settings the educator has fallen into a rut of continual redundant feedback. Johns (1990) described the necessity of
constructive feedback. Feedback, according to him, should be corrective but in a positive manner. Kirkpatrick and Buck (1995) concurred with Johns. They felt that feedback must be accurate. Also if students heard the same redundant comment, for example “good work”, without any concrete feedback, the chances of their paying attention to the feedback was minimal.

How the educator designs the set-up of the gymnasium has given nonverbal feedback to the students. Verbal feedback should also be given throughout the lesson. Both types of feedback should be accurate and done in a positive and reinforcing manner. The end result would be an enhanced self-concept.

Effect of Teachers' Behaviour upon Self-Concept

In order for the educator to affect the learner, the student must accept the teacher as a significant other. Oosterwegel and Oppenheimer (1993) described the shift in significant others throughout adolescence. While caregivers and friends constituted the original influence, this changed to teachers, friends, fellow students, and non-family-members as adolescence progressed. Burns (1982) and Orlick and Botterill (1975) discussed how teachers' expectations affected self-esteem. The students began school with a predisposed sense of their ability level, and initial interactions with educators
affirmed the existing self-concept of ability if the two individuals had
the same perceptions. However, if the educator's expectations were
very low for a student, that student would eventually fall into the
perception that he or she had little to offer. This also worked in
reverse to enhance the self-concept of the learner. The teacher's
expectations could be delivered to the student verbally or nonverbally
according to Burns (1982). Physical proximity, the amount and type
of feedback given, and even attention gave nonverbal feedback to the
student.

Once again, feedback was essential in the development of a
realistic self-concept. Burns (1982) described giving a student honest
appraisal in an inviting atmosphere to assist the learner in developing
an accurate view of his or her self. The self-concept of abilities was
most affected by the educator according to Pekrun (1990). The
school influenced only the school related self-concept. When the
individual altered his or her environment, the various self-concepts
adjusted.

Educators' self-concept affected the type of teacher they were.
As stated by Burns (1982), a teacher that accepted him or herself
was more likely to accept the student. If teachers had a high self-
concept, then they would in turn have a positive effect on the
student's self-concept. An environment free of self-doubt and anxiety
was a positive one. This type of environment was characterized by pupil discussion, teacher and student interaction, creative thinking, and problem solving. This environment described an effective physical education class.

In order to be an effective teacher and positively influence the self-concept of one's students, there were three necessary elements. The educator must be genuine, empathetic, and accept all differences in his or her students (Burns, 1982). Additional helpful hints were as follows:

1. created a caring environment
2. made the pupils feel supported yet not overwhelmed
3. teachers offered advice and not imposed it
4. encouraged pupils to make significant decisions
5. helped the students to set realistic goals and self-evaluate
6. allowed for self-discovery in the class
7. focused on positive reinforcement as feedback
8. emphasized the process versus the product
9. was clear with instructions
10. recognized uniqueness and accommodated individuality
The pupils devised a list of characteristics that they preferred in a teacher:

1. kept control of the class
2. had no favorites and was fair
3. had the ability to explain subject matter and was helpful
4. was cheerful, friendly, patient, and understanding
5. gave interesting lessons and was interested in the students
6. had a sense of humour (Hendry, 1978).

The successful educator would enhance the student's self-concept. The teacher who was successful usually had a high sense of self-concept which was brought into the teaching environment. Every student was different and special; the educator who understood that would be a positive influence on the pupil's self-concepts.

Gender Issues

Traditionally, research has had a tendency to polarize the genders. Talbot (1986) stated that it "is the polarization of sex roles which lead to hierarchy, elitism and anxiety about sex roles" (p. 120). The area of adolescent self-concept was no different. Orr and Dinur (1995) remarked how the differences in male and female adolescent self-concepts were associated with gender inequality within social
status. The majority of the studies portrayed the genders in a contrasting manner.

Granleese et al. (1989) contrasted males and females while describing competence. The males did not make a significant association between physical and cognitive competence and a general sense of self-worth. The females had a stronger association between these variables. There was a connection drawn between these findings and sexual roles. SternbergHorn and Hasbrook (1986) found no differences between the genders in their study on personal competence judgments. The diffusing nature of the self-perceptions of females redefined the rigid roles of males. The result, according to Granleese et al. (1989), found more females dependent on males for confirming their self-concepts. Monaco and Gaier (1992) stated that the adolescent experience in high school was extremely important to females. This was where the female made decisions on roles and aspirations. This environment, according to Monaco and Gaier, was plagued by conflicting experiences.

Shaw et al. (1995) supported the findings of Granleese et al. (1989) and added new dimensions to them. A heightened sense of self may have been associated with female involvement in physical activity. This participation would help females to challenge the restrictive gender-based stereotypes regarding appropriate behaviour. Male
participation, on the other hand, may not necessarily enhance their development of additional characteristics, since it was stereotypically what that gender has been nurtured to.

Talbot (1986) believed that it was imperative for the physical education teacher to appreciate gender differences. The female must develop a sense of value toward her body, as the lack of the appreciation for the body led to a drop in physical education participation. Salokun (1990) supported these findings. He stated that the older the female adolescent, the more likely she was to decrease her participation in sports. Talbot (1986) described physical education and the adolescent female and how this relationship transformed. Originally the female was participating, enjoying the class, and working hard. Then suddenly she wanted nothing to do with physical education. As she passed through puberty, the peer group did not see anything feminine about physical education and influenced her to stop participating. According to Streitmatter (1993), the females who participated in athletics were perceived as having a high level of masculinity. The female may be anxiety stricken or lack self-confidence due to the influence of peers. Physical activity may be inversely related to these aspects of the self.

Whitehead and Corbin (1991) also pitted the genders against one another. As a result, the males scored higher than the females on the
led

 offending and striking. They were successful in their movement throughout the party, despite the objections of some who saw it as an unnecessary disruption of the event.

In the end, the party was a success, with a large turnout and high levels of enthusiasm. The successful movement of the party, however, did come at a cost, as some members of the opposition felt their voices were not being heard.

Simultaneously, the party leaders were working on a new strategy to address the concerns raised during the event. They decided to introduce a new policy that would directly address the issues raised by the opposition.

The policy was well-received, and the party leaders were able to gain the support of a large portion of the attendees. The successful implementation of the new policy was a significant step towards resolving the issues that had arisen during the event.
competency and confidence of their physical domain. This research did not allow for the differences between the sexes prior to the data analysis of the physical ability self-concept. Monaco and Gaier (1992) reviewed gender differences in coeducational classes compared to same-sex classes. They found that females in coeducational classes achieved higher grades than males; however the females had lower levels of confidence and self-regard. Through this investigation, Monaco and Gaier also discovered that females relied on support groups more and that there was a difference between how the genders interacted in groups.

Researchers have reviewed the differences between the genders and their social self-concepts. According to Monaco and Gaier (1992) males and females differed in their achievement, motivation, group interaction patterns, self-concept, reliance on family support and role models, and leadership styles. Oosterwegel and Oppenheimer (1993) established that females, more than males, discussed family and other people. The males related to people in general. Younger males preferred to interact with adults, familiar or expert, while older females preferred to interact with familiar adults according to Gallander Wintre and Crowley (1993). In discussions, the males mentioned enemies more than females, and intimate friends less than the females. Jackson, Dunham, and Kidwell (1990) reported that males
were less likely to admit feelings of warmth or disclosure in general. Females were more affectionate with family members.

Archer (1989a) reported that males were more concerned with their occupations and females with interpersonal relationships. Gilligan (1979) stated that females define themselves by their relationships, while males define themselves through their occupations. Also established was that females were more likely to use advanced decision-making skills in family roles and sexuality. Offer et al. (1988) presented findings that found the female adolescents to be more committed to school work and a work ethic than males.

The developing adolescent differed with gender according to Covey and Feltz (1991). The adolescent male reported less emotional stress and unhappiness than the adolescent female. Streitmatter (1993) agreed with Covey and Feltz and added that females in early adolescence had a lower sense of self-esteem than males, as the females appeared to be more adversely affected by puberty. They were less satisfied than males with the physical changes of this stage of life. Offer et al. (1988) also described psychological gender differences. The males reported better control of their feelings and a greater degree of happiness. These findings were supported by Covey and Feltz (1991).
Di Tomasso (1987) reviewed several studies on gender issues. Females' self-images were lower than the males' during adolescence. These finding were substantiated by Hagborg (1993) and Lintunen et al. (1995). Another finding reported that males based self-evaluation on external sources, where as females based evaluations on internal sources. How the adolescents prioritized the feedback and their perceptions were different. Males predicted higher levels of achievement and females underestimated their performance (Monaco & Gaier, 1992).

Some authors found similarities between males and females. Weiss (1986) found there to be no gender differences when viewing personal competence. Streitmatter's (1993) study found that there was no significant difference in identity status or the development of identity between males and females. Sherrill et al. (1989) reported that as fitness levels increased in both males and females, so did their attitude and self-concept. Wylie (1979) went a step farther and found no evidence of gender differences in the global self-concept of adolescents at any age. Emmanouel et al. (1992) also found no gender differences during their study. Offer et al. (1988) did find some discrepancies between the genders and their self-concepts; however, the differences lessened as the age of the adolescents increased. The
use of the self-concept development was comparable in males and females, according to a study that Archer completed in 1989a.

As one can see there were similarities between genders and the development of their self-concepts through adolescence. New results may have arisen when exploring the relationship between genders, self-concept formation, or enhancement, if the genders were not polarized.

**Self-Concept Testing Instruments**

There were many different instruments available to test self-concept. The problem arose when the multidimensional aspect of self-concept had to be taken into consideration. There was also a lack of instruments that would measure the changes in self-concept in a physical setting.

Self-reports, interviews, and questionnaires had a great deal of support from many researchers. Oosterwegel and Oppenheimer (1993) have utilized self-reports and self-concept questionnaires. They justified the use of these instruments because they were standardized and easy to compare, administer, and score. The disadvantage was that the assessment tool was restricted to a particular range of subjects. Oosterwegel and Oppenheimer also suggested free self-descriptions. These were appropriate for all ages, but must be interpreted. The interpretation was always subjective.
There were many other assessment tools available. Many of these instruments were piloted in the United States; some have been adopted for other cultures. Alternative instruments include:


5. Offer Self-Image Questionnaire devised by Wylie in 1961 (Katona-Sallay, 1990)


7. Piers-Harris Children's Self-Concept Scale (PHCSCS) devised by Piers and Harris in 1984 (Emmanouel et al., 1992; Salokun, 1990)


Black (1976) reported the most effective instrument and found that the TSCS surpassed other assessment tools. Many authors agreed with Black's decision. However, it must be noted that many other instruments have been devised since Black's study was completed.

Various authors combine numerous tests into each study they conduct. For example, Bluechardt and Shephard (1995) also tested their subjects' IQ. The Kaufman Test of Educational Achievement, the Woodcock-Johnson Psycho Educational Battery, and a Social Behaviour Rating were utilized. Sabornie (1994) incorporated the RSES and tested self-concept with the Background and Outcome Survey. The PCSC and the Multidimensional Measure of Children's Perceptions of Control were used by Weiss (1986) to complete her research. Emmanouel et al. (1992) combined the Cheffers' Adaptation of Flander's Interaction Analysis System, Johnson and Nelson tests for physical competence, Simons, Beunen, Renson, and Van Gerven's assessment of physical competence, Holopainen Test, the PHCSCS, and the Zodikoff Scale of Social Attitude.

The lack of multidimensional instruments to measure self-concept was a universal concern. Various assessment tools were being used to encompass the various self-concepts of the individual. What was needed was a multidimensional self-concept instrument that
emphasized the physical aspect of the self-concept. Unfortunately, one is not available at this time.
CHAPTER THREE: METHOD AND PROCEDURES

The intent of this study was to gather information on the relationship between physical education and the self-concept of adolescent females. This section begins with a description of the Q-methodology and the procedures that were used to conduct this study. Also included is the method of collecting and recording the data. Information on the data processing, analysis, and the participants is also detailed.

Type of Study

This research was a qualitative study applying a factor analysis to a Q-sort. Interviews and insight group discussions were also included.

Q-Methodology

Due to the lack of a multidimensional self-concept instrument that included the physical component of the self-concept, the Q-methodology, and specifically the Q-sort, was found to be the most appropriate instrument for this research.

The Q-method was developed by Stephenson in 1953. Even though this research method has been available for many years,
researchers in education rarely used it. This method required the participants to rank a list of descriptive statements on a particular topic. The ranking was based upon the individual's perceived importance of the statements in their lives.

Stephenson (1953) proposed this research method that would not be based upon scales and tests. Instead he intended, to study man's [sic] attitudes, his thinking behavior, his personality, his social interaction, his self, his psychoanalytical mechanisms, and all else objective to others or subjective to himself; and we can do all this scientifically, without using any formal scales or measuring instruments of the kind which psychology is familiar. (p. 5)

This was achieved through the Q-methodology. Stephenson (1953) believed that the Q-technique would be imperative when participants were viewed as total thinking and behaving human beings. Barnette (1976) added that the Q-technique had an emphasis on human qualities and the acceptance of one's self and of others.

The development of a Q-sort was fundamental to this research. In order to develop a Q-sort, multiple "Q-items" must be prepared. Q-items were brief descriptive statements that correlate to the particular Q-sort. For example, a scale reviewing the connections between self-concept and family interaction may have this Q-item: "I
am an important member of my family." This entire list of statements was called a "Q-set". The participant proceeded to "sort" the Q-items along a continuum. The continuum usually ranged from most like the self to least like the self. It was essential, according to Block (1961), that the Q-items be in the participants' language, vocabulary, and grammar. Proctor, Clarke, and Mygdal (1989) stated that these rankings were based upon how the participant perceived the descriptors. A "double Q-sort", according to Proctor et al., occurred when the researcher wished to study the difference between the ideal and the actual self-concept. The participant ranked the Q-set for the ideal self first on a scale of most like my ideal self to least like my ideal self. Then the participant rated the Q-sort again with a scale of most like me to least like me. This portrayed the actual self, and therefore was a double Q-sort. The study by Proctor et al. was based on college of education students' perceptions of self and the ideal teacher. The new addition of a double Q-sort helped to establish a correlation coefficient between the participants' ideal and actual ranking of the Q-items. Quarter, Kennedy, and Laxer (1967) researched the effect and order of this type of Q-sort and they found that the order of sorting had no significant difference.

The Q-methodology may be applied to either an essentialist or constructionist framework, according to Kitzinger and Stainton Rogers
(1985). This would determine how the Q-sort would be analyzed. In an essentialist framework there would be a correct way of completing the ranking of Q-items, which would equate to the items having hidden meanings. This type of framework was similar to traditional attitudinal scales and personality tests. The constructionist framework did not impose any structure of response, nor did it require the investigator to impose structure to the retrieved data; rather, the participant did so by sorting the Q-items.

There have been many studies performed employing the Q-sort method. Schwartz, Ross, and Houchins (1975) researched the self-concept of expressive language of adolescent hearing impaired students. Their ranking scale consisted of a Lykert scale of "most like me, very much like me, like me, a little like me, undecided, a little unlike me, unlike me, very much unlike me, and most unlike me" (p. 573). Falchikov (1989) designed a Q-set for adolescents to rank their images of adolescence. Kitzinger and Stainton Rogers (1985) investigated lesbian identities and utilized a Q-method. Identity, self-concept, and adolescents were areas that were suitable for utilizing the Q-methodology.

Since many studies have employed the Q-sort technique, some concerns have emerged. Block (1961) discussed some disadvantages of this methodology. One criticism was that the results of a particular
Q-sort would be based solely on the Q-set employed. In other words, more or differing Q-items would alter the results. This would not affect the validity or the reliability of the test; it would simply be a different test. This would be similar if there were any discrepancies between scales or tests. Individuals may not record the same result on the Gates-MacGinitie Reading Tests as they do on the Gray Oral Reading Test. The simple reason would be that they were two different tests. Another concern was that a standard language may not have been utilized. It would be up to the researcher to ascertain a universal language for the Q-set. The main disadvantage, according to Block was that an order ranking of all descriptions was unrealistic. To alleviate this problem, categories may be established. Within each of these categories the participant would ranked a set number of Q-items.

An instrument that included physical education and how it influenced the adolescent self-concept was nonexistent. Thus, Q-method was the most logical way to develop such an instrument. Since the emphasis in education was upon the individual student, so too should be the emphasis on research design for the adolescent self-concept.
Foundations

The research question has remained constant: to examine how the physical education environment affects adolescents’ self-concept. However, as most research, there have been several alterations throughout the course of this study. Originally this research was to include both males and females and address the similarities between the genders. Due to time constraints it was deemed necessary to limit the study to only females.

It was a challenge to ascertain which research method would best facilitate relevant data for the research question. While researching self-concept, the specific areas of somatics, peer support, teachers as significant others, and the physical education curriculum became prevalent. These four variables governed the remainder of the research. Once the methodology was determined, the participants had to be chosen. Not only did their knowledge help to develop the Q-items, but their insider language was utilized to form the Q-items.

Participants

Three groups of individuals, all of whom were female, participated in the development of the Q-items. The first group was comprised of females ranging in age from 12 to 14. Four females
were randomly chosen to be involved in the interviews to develop the Q-set.

Four physical education teachers offered a "hands on" educational perspective to the Q-items in their interviews. These four educators have received their Ontario Teaching Certificate and were teaching at the transitional level, grades 6 to 8. Based upon consultation with a physical education teaching specialist, four suitable participants were chosen. This selection was based upon their teaching ability, the respect bestowed upon them by the physical education community, and whom they taught. The criterion established was that they must have been teaching females between the ages of 12 and 14.

The third group of participants was four curriculum coordinators who had extensive experience in designing and implementing curriculum. These four specialists brought insight into the physical education curriculum content that was presented to the adolescent females. This group was selected based upon their teaching experience and their ability to participate in reflective analysis. This analysis was based on their knowledge of various teaching methodologies, somatics, and the Ontario Common Curriculum.

The next group of participants, also female adolescents, participated in the actual Q-sort. There were 15 female adolescent
students from one grade 8 class who attended Johnsberg Senior Elementary School. In addition, there were 12 female adolescent students from one grade 8 class at Olar Creek Senior Elementary School. These students were required to have a completed parental consent form. From this group of participants 4 volunteers, 2 from each school, participated in the insight group.

Procedures

When researching a topic that involved students in an educational environment, in addition to research ethics, permission from the school board was imperative. Once permission was given by the Brock University Ethics Committee, the specific Board of Education, and the principals of both schools, then the parents of the adolescents received a letter of permission (refer to Appendix A). Table one briefly explains each phase of this research.

Phase 1: Interviews

Interviews occurred with all three groups of female participants: curriculum coordinators, physical education teachers, and adolescents. The interviews were designed to be standardized yet open ended, with nondichotomous questions. Included in the interviews were questions for demographic information and also personal history. In addition, there were questions based upon the four categories for the Q-sort:
me, question a number of issues. I believe the more strategic
questions concern CMOs and their positions in global
marketing. Could there be a need for more strategic
planning and execution? Could there be a need for more
critical thinking about the role of the CMO in the
organization? Could there be a need for more strategic
planning and execution?
teachers as significant others, peer support, meaningful connections to the body, and curriculum content. For example, the interviews began with a personal history that included demographic information. Participants were also asked how they would define self-concept and somatics, and what were important roles for peers. In addition, positive and negative elements of the physical education curriculum were questioned, as well as important characteristics of a physical education teacher (refer to Appendix B).

These initial interviews were used to develop the Q-items that were included in the Q-set. The interviewees detailed the characteristics of each category, which assisted in the designing of the Q-set. The female adolescent interviewees also established the insider language that would be used in the Q-set. Each interview was performed at the participant's educational site or home to provide a comfortable environment for the participant. An audio tape recorder was used to record the data.

Phase 2: Developing the Q-sort

All of the interviews were listened to three times by the researcher, and important information was documented. This information from the interviews was reviewed to develop the Q-set, which was comprised of the list of items in the Q-sort. Each section (teachers as significant others, peer support, meaningful connections
to the body, and curriculum content) was analyzed separately. The common factors that arose from this analysis were incorporated into their specific areas of the Q-set. For example, role models were addressed and this issue coincided with the topic of teachers as significant others. It was imperative to draw connections from the physical education teachers and the curriculum coordinators to the adolescents, since the adolescents were the respondents in the actual score. The female adolescents' language and grammar were utilized as the insider language when the Q-items were designed. For example when students discussed increased responsibility in the physical education class by providing suggestions for content, the Q-item was termed, "I have input into what we do in gym class". The Q-set was developed based the individual's perceived importance of the Q-items in their lives, therefore, the ranking of "it is important to me when" was utilized for the entire Q-set, a total of 28 Q-items. When developing the Q-set, a predetermined number of Q-items was not established. The 28 items were reflective of the analysis.

The Q-items were placed on thick, coloured paper for a tactile sensation for the participants. The various colours served to divide the topics. Teachers as significant others were produced on red paper; peer support appeared on yellow; green was for meaningful connections to the body; and curriculum content was printed on blue
Table 1

Data Collection and Procedures

<table>
<thead>
<tr>
<th>Phase</th>
<th>Participants</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Phase 1: Interviews        | •4 female adolescents
•4 female physical education teachers
•4 female curriculum coordinators | •4 hours of audio tape data
•6 hours of audio tape data
•7 hours of audio tape data
•the above data established the basis for phase 2 |
| Phase 2: Developing the Q-sort | •researcher                                                                | •reviewed audio tapes from phase 1
•designed Q-items
•determined ranking strategy
•determined the type of paper for the Q-sort
•determined variable colours
•decided to include paper clips for ties |
| Phase 3: Data collection   | •15 female adolescent participants from Johnsberg Sr. Elem.
•12 female adolescent participants from Olar Creek Sr. Elem.               | •collected raw data from Q-sort                                         |
| Phase 4: Data analysis     | •researcher                                                                | •factor analysis of raw data to determine the most important Q-items to the participants |
| Phase 5: Insight group     | •4 volunteer participants (2 from each school)
•meeting #1
•meeting #2                                                                 | •gather insider knowledge on most important Q-items
•21 pages of transcription
•12 pages of transcription |
<p>| Phase 6: Subsequent Analysis | •researcher                                                                | •re-evaluated Q-sort after initial analysis                            |</p>
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data 1</td>
<td>Data 2</td>
<td>Data 3</td>
</tr>
<tr>
<td>Data 4</td>
<td>Data 5</td>
<td>Data 6</td>
</tr>
<tr>
<td>Data 7</td>
<td>Data 8</td>
<td>Data 9</td>
</tr>
<tr>
<td>Data 10</td>
<td>Data 11</td>
<td>Data 12</td>
</tr>
<tr>
<td>Data 13</td>
<td>Data 14</td>
<td>Data 15</td>
</tr>
<tr>
<td>Data 16</td>
<td>Data 17</td>
<td>Data 18</td>
</tr>
</tbody>
</table>

Note: The table continues with more rows and columns, but they are not fully visible in the image.
paper. There were two additional items that were reoccurring from all interviews that did not fit into any of the four topics; these appeared on pink. Along with the Q-set, a sheet for demographics was included in the package for the participants. This sheet was entitled *All About You*. Questions on age, residency, siblings, and country or birth were included (Appendix C for Q-sort).

**Phase 3: Procedures of Administration**

After the Q-set was designed, a cover letter was developed for the participant (Appendix D). This cover letter was to assist the participants after they had participated in the Q-sort.

The female adolescent participants assembled in a given location within their educational facility, students from Johnsberg Senior Elementary School within their institution, and on a separate date Olar Creek Senior Elementary School students at their institution. Both of these schools were characterized by a school board consultant as large kindergarten to grade 8 elementary schools located in relatively high socioeconomic areas. The communities were both stable and conservative. The parents of the students were very involved in the activities of the school.

At this point the Q-sort was distributed by the researcher. The participants were told that they were responsible to rank each descriptor of "how important is this to you". The most important
were to be placed on the top of their pile progressing down towards those Q-items that were deemed least important. Taking into consideration that the participants may feel the same about several of the Q-items, paper clips were included in their package so that the participants could attach several of the Q-items together, denoting equality. Once the scale was completed by the participants, it was collected by the researcher for further analysis.

Phase 4: Data Analysis

A factor analysis was used to analyze the completed Q-sorts. This was done by assigning a numerical value to the ranking positions. For example, the Q-item that was ranked first by participant A was given a numerical value of 28. If that same Q-item was ranked last by participant D it was given a numerical value of one. If a participant placed several cards together, the numerical value given to each of these Q-items was an average of the ranking positions. For example if the 5th and 6th ranked Q-items were fused with a paper clip, then they would each receive a numerical value of 23.5. At the end of this procedure, each Q-item had been ranked 27 times. The total of all the numerical values would establish its overall ranking of how important it was to those adolescents at that point in time. This resulted in the most important Q-items emerging. Lists were compiled for the overall ranking of the Q-items, and also separate ones for each class to see
how they differed. Descriptions for those Q-items were prepared with
the assistance of a group discussion with four of the female
adolescent participants in the insight group.

**Phase 5: Insight Group**

Following the completion of the Q-sort, a sign-up sheet for an
insight group was available for interested participants. The insight
group was randomly selected from the list of volunteers. It consisted
of 2 participants from Johnsberg Senior Elementary and 2 from Olar
Creek Senior Elementary. It was important to establish what this
group was like, to help to capture the personalities of these girls.

Betty, who was from Johnsberg Senior Elementary, was 14 years
old. Her parents were divorced and both remarried. She had three
younger brothers and lived in a town. Betty was a very petite
adolescent. She appeared to be struggling to find her own identity as
she wanted to associate with other adolescents that her parents may
have deemed inappropriate, yet continually tried to fit into this insight
group. She found her physical education class of all girls to be her
most positive experience of this kind.

Laura attended Johnsberg Senior Elementary. She was 14 and
also came from a divorced home where her mother was remarried.
She was the youngest of nine siblings and lived in a home just outside
of the town. This young girl was tall, slender, very mature, intelligent,
thoughtful, and articulate. She had many troubled and struggling friends who concerned her. She was very comfortable with the insight group and freely spoke her mind. She was currently in a coeducational physical education class. Her opinions were coloured with feminism and the plight of girls her age.

Adrienne was from Olar Creek Senior Elementary. This 14-year-old was very concerned with material items and the exterior beauty of individuals. This helped fuel her drive for fitness and her participation in physical education. She participated in an almost all male physical education environment and seemed to thrive in it. Adrienne participated in rowing and track and field. She was very strong willed and rebellious. She lived in the city with both of her parents and had one younger sister. Adrienne did not like it when authoritative figures told her what to do.

At 14, Heidi was a self-proclaimed hippie from Olar Creek Senior Elementary. She was a giving soul and enjoyed being in positive environments. She would leave a situation that might cause conflict. She appeared to be well grounded and realized that she must work for the things that she wants in order to be independent. Heidi had a younger sister and lived with both of her parents in the city. She was not currently participating in physical education.
Each of these participants had similarities, yet they were very diverse. The adolescents ranged in interests, maturity, and confidence. Even though each was unique, the group developed an interesting rapport with one another and the researcher. They were all considerate of others' opinions, which often fueled their own. It appeared that a real understanding of who they were or even who they were trying to be was emerging.

The group congregated at Brock University to discuss the highest ranking Q-items. During the first meeting, these adolescents related what the statements meant to them and how they could be achieved. This interview was audio recorded and transcribed (refer to Appendix E).

From the transcription descriptions of the highest ranked Q-items were completed in the adolescents' vocabulary. These descriptions were reviewed by those who participated in the insight group during the follow-up session. Any discrepancies were adjusted at that time.

**Phase 6: Subsequent Analysis**

After receiving considered comments from an outside expert a subsequent analysis of the data was completed. This additional analysis was based upon the development of validation as a theme. For the purpose of this study self-validation was viewed in a positive
G: is "mt^upB
H: har

The given text is not clear and contains many symbols and abbreviations. It appears to be a page from a technical or scientific document. The content is difficult to interpret due to the use of symbols and abbreviations. Further investigation would be required to understand the meaning of this page.
manner. Mendelson and Aboud (1999) stated that self-validation was encouraging and reassuring. The feeling of success was also included as characteristics that influence validation. Success was defined as exceeding one's own goals or standards (Robinson, 1990). Ishiyama (1995) also added that validation helped to maintain and enhance one's sense of well-being. Validation was achieving a positive sense about one's self. According to Ishiyama (1995) there were four sources of validation; things, places, relationships, and activities. In this study, specifically, intrinsic and extrinsic validation were reviewed.

Lived-body experience classification has included a self-referential mode, specifically concepts about the self (Schrag, 1962). For a Q-item to be viewed as intrinsically validating the self was the sole determinant. For example, my own actions make me feel good about myself. The Q-items that were viewed as extrinsically validating included an outside agent, either another individual (relationship), an environment, or an activity. This relates to the self-other mode for lived-body experiences. Schrag (1962) revealed the relationship between the self and someone else as being either negative or positive. During this analysis only the positive aspects will be viewed. For example, an outside agent, someone or something other than I, make me feel good about myself.
Once the criteria was established each of the Q-items were reviewed to distinguish which category of validation they fit into. The ranking of the Q-items was then reviewed to determine if validating statements played any significant role in the ranking of the Q-items within the Q-sort.

Inconvenience to Participants

There was not any travel required by the participants during the interviews to develop the Q-sort, these occurred either in their educational institution or home. The participants performing the Q-sort did so in their educational setting or home. The insight group interaction meeting with four of the adolescents to discuss the highest ranked factors was held at Brock University. This required some travel by the participants who live in the city. Those that resided farther away were transported by the researcher.

Data Interpretations

The descriptions from the rankings were reviewed by the researcher and general conclusions were drawn to determine how physical education affects the adolescent female's self-concept through peer support, teachers as significant others, meaningful connections to the body, and the physical education curriculum.
This methodology and procedure chapter detailed the foundations of how this research was developed. It was my intention to give an understanding of the process of deliberation that occurred in determining the most appropriate method and also how these procedures unfolded. The findings from this research will follow this chapter.
CHAPTER FOUR: FINDINGS AND INTERPRETATIONS

This chapter illuminates the results of the Q-sort and reviews the topics of peer support, teachers as significant others, meaningful connections to the body, and curriculum content. An attempt to reach a greater understanding of the Q-items deemed most important by the female adolescents is also included. These Q-items are described in the insider language in an attempt to understand their perceptions of these statements.

Participants

In total, 27 took part in the Q-sort. Three or 11% were 12-year-olds, 13 or 48% were 13, 8 or 30% were 14, and 11% did not record this information. All of the 12-year-olds came from Johnsberg Senior Elementary, and the 3 participants who did not respond to the age question attended Olar Creek Senior Elementary. Johnsberg Senior Elementary School showed 53% of the participants came from a divorced home, compared to 33% from Olar Creek Senior Elementary school. Johnsberg households having two children or fewer were at 40%. Olar Creek recorded 67% of the homes where the participants
lived to have two or fewer children residing. Even though these two schools were described as falling into the same category by the Board's consultant, it can be seen that there were differences between the two schools.

Results from Q-Sort: Initial Analysis

The initial chart, Table 2, displays the results of the Q-sort in order of ranking. The chart lists the Q-items, the category or variable, and the numerical factor that placed them in to that ranking. The raw data have also been transformed into chart form (refer to Appendix F). This table clearly illustrates the overall highest ranking Q-items and which topic they derived from, curriculum content (CC), teachers as significant others (TSO), meaningful connections to the body (MCB), peer support (PS), and other (O). As a reminder, the "other" topic area was developed based on the repetition of these statements in the initial interviews and the fact that they did not conform to any of the existing topics. Overall, the peer support category included five out of eight Q-items within the top 10 ranked descriptors. Teachers as significant others ranked eight out of its nine Q-items in the
<table>
<thead>
<tr>
<th>Q-ITEM</th>
<th>Topic</th>
<th>Total Ranking score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>My friends show they respect me.</td>
<td>PS</td>
<td>658.0</td>
<td>1</td>
</tr>
<tr>
<td>I can look in the mirror and feel good.</td>
<td>MCB</td>
<td>535.0</td>
<td>2</td>
</tr>
<tr>
<td>I help others with something that I am good at.</td>
<td>MCB</td>
<td>498.0</td>
<td>3</td>
</tr>
<tr>
<td>I hear my classmates cheer me on.</td>
<td>PS</td>
<td>496.0</td>
<td>4</td>
</tr>
<tr>
<td>My gym teacher shows he/she respects me.</td>
<td>TSO</td>
<td>495.5</td>
<td>5</td>
</tr>
<tr>
<td>My classmates say, “That was good” or “Great job!”</td>
<td>PS</td>
<td>490.5</td>
<td>6</td>
</tr>
<tr>
<td>I can say something positive to someone else in my class.</td>
<td>PS</td>
<td>488.0</td>
<td>7</td>
</tr>
<tr>
<td>I am successful in gym class.</td>
<td>CC</td>
<td>472.0</td>
<td>8</td>
</tr>
<tr>
<td>I have input into what we do in my gym class.</td>
<td>CC</td>
<td>470.5</td>
<td>9</td>
</tr>
<tr>
<td>My classmates say “That is okay; try it again, we have lots of time.”</td>
<td>PS</td>
<td>470.5</td>
<td>10</td>
</tr>
<tr>
<td>I hear my classmates clap when I have done something well.</td>
<td>PS</td>
<td>457.0</td>
<td>11</td>
</tr>
<tr>
<td>My gym teacher knows that all the students are different.</td>
<td>CC</td>
<td>456.5</td>
<td>12</td>
</tr>
<tr>
<td>I know I can rely on my body.</td>
<td>MCB</td>
<td>443.5</td>
<td>13</td>
</tr>
<tr>
<td>I have opportunity to try to learn new things in gym.</td>
<td>CC</td>
<td>435.0</td>
<td>14</td>
</tr>
<tr>
<td>My gym teacher is knowledgeable.</td>
<td>TSO</td>
<td>396.5</td>
<td>15</td>
</tr>
<tr>
<td>My classmates pat me on the back when I do something well.</td>
<td>PS</td>
<td>390.0</td>
<td>16</td>
</tr>
<tr>
<td>I know that as girls we are all different.</td>
<td>MCB</td>
<td>375.5</td>
<td>17</td>
</tr>
<tr>
<td>My gym teacher is open and honest with me.</td>
<td>TSO</td>
<td>371.0</td>
<td>18</td>
</tr>
<tr>
<td>My gym teacher participates in class.</td>
<td>TSO</td>
<td>317.5</td>
<td>19</td>
</tr>
<tr>
<td>I have a female gym teacher.</td>
<td>TSO</td>
<td>310.0</td>
<td>20</td>
</tr>
<tr>
<td>I learn about my self and my body.</td>
<td>MCB</td>
<td>291.5</td>
<td>21</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Boys are in my gym class.</th>
<th>O</th>
<th>277.5</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am hugged by my friends in gym class.</td>
<td>PS</td>
<td>265.0</td>
<td>23</td>
</tr>
<tr>
<td>My gym teacher gives me individual feedback.</td>
<td>TSO</td>
<td>260.0</td>
<td>24</td>
</tr>
<tr>
<td>My gym teacher shares his/her personal experiences with me.</td>
<td>TSO</td>
<td>233.5</td>
<td>25</td>
</tr>
<tr>
<td>Only girls are in my gym class.</td>
<td>O</td>
<td>215.0</td>
<td>26</td>
</tr>
<tr>
<td>My gym teacher knows some personal things about me.</td>
<td>TSO</td>
<td>207.0</td>
<td>27</td>
</tr>
<tr>
<td>I think of my gym teacher as a role model for me.</td>
<td>TSO</td>
<td>177.0</td>
<td>28</td>
</tr>
</tbody>
</table>
lower half of the ranking scale.

For further analysis Table 3 illustrates the ranking of Q-items as most and least important, by topic. The chart list the category or variable and the Q-items which were included, and their numerical factor that placed them into that ranking.

Table 4 illustrates the four Q-items ranked overall to be the most important to the female adolescents. There are only two topics represented on the table: peer support and meaningful connections to the body.

The highest ranking Q-item received 658 out of a possible 756, or 87%. The numerical ranks showed my friends show they respect me was ranked number 1 by a margin of 123 or 17% over the next highest ranked Q-item. That represented an overwhelming agreement on the importance of peer respect amongst the participants. However, the 3rd and 4th ranked Q-items were separated by only a small margin. Those two Q-items were from different topics and the statements were distinct.

Table 5 represents the overall least important Q-items to the participants. Teachers as significant others was the topic for three
### Table 3

**Topic Q-Items Rankings**

<table>
<thead>
<tr>
<th>TOPIC AND Q-ITEM</th>
<th>Total Ranking score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum Content:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am successful in gym class.</td>
<td>472.0</td>
<td>1</td>
</tr>
<tr>
<td>I have input into what we do in my gym class.</td>
<td>470.5</td>
<td>2</td>
</tr>
<tr>
<td>My gym teacher knows that all the students are different.</td>
<td>456.5</td>
<td>3</td>
</tr>
<tr>
<td>I have opportunity to try to learn new things in gym.</td>
<td>435.0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Teacher as a Significant Other:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My gym teacher shows he/she respects me.</td>
<td>495.5</td>
<td>1</td>
</tr>
<tr>
<td>My gym teacher is knowledgeable.</td>
<td>396.5</td>
<td>2</td>
</tr>
<tr>
<td>My gym teacher is open and honest with me.</td>
<td>371.0</td>
<td>3</td>
</tr>
<tr>
<td>My gym teacher participates in class.</td>
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<td>233.5</td>
<td>7</td>
</tr>
<tr>
<td>My gym teacher knows some personal things about me.</td>
<td>207.0</td>
<td>8</td>
</tr>
<tr>
<td>I think of my gym teacher as a role model for me.</td>
<td>177.0</td>
<td>9</td>
</tr>
<tr>
<td><strong>Meaningful Connections to the Body:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can look in the mirror and feel good.</td>
<td>535.0</td>
<td>1</td>
</tr>
<tr>
<td>I help others with something that I am good at.</td>
<td>498.0</td>
<td>2</td>
</tr>
<tr>
<td>I know I can rely on my body.</td>
<td>443.5</td>
<td>3</td>
</tr>
<tr>
<td>I know that as girls we are all different.</td>
<td>375.5</td>
<td>4</td>
</tr>
<tr>
<td>I learn about my self and my body.</td>
<td>291.5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Peer Support:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My friends show they respect me.</td>
<td>658.0</td>
<td>1</td>
</tr>
<tr>
<td>I hear my classmates cheer me on.</td>
<td>496.0</td>
<td>2</td>
</tr>
</tbody>
</table>

(table continues)
| My classmates say, “That was good” or “Great job!” | 490.5 | 3 |
| I can say something positive to someone else in my class. | 488.0 | 4 |
| My classmates say “That is okay; try it again, we have lots of time.” | 470.5 | 5 |
| I hear my classmates clap when I have done something well. | 457.0 | 6 |
| My classmates pat me on the back when I do something well. | 390.0 | 7 |
| I am hugged by my friends in gym class. | 265.0 | 8 |

**Other:**

| Boys are in my gym class. | 277.5 | 1 |
| Only girls are in my gym class. | 215 | 2 |
Table 4

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-Items</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My friends show they respect me.</td>
<td>Peer support</td>
<td>658</td>
</tr>
<tr>
<td>2</td>
<td>I can look in the mirror and feel good.</td>
<td>Meaningful connections to the body</td>
<td>535</td>
</tr>
<tr>
<td>3</td>
<td>I help others with something that I am good at.</td>
<td>Meaningful connections to the body</td>
<td>498</td>
</tr>
<tr>
<td>4</td>
<td>I hear my classmates cheer me on.</td>
<td>Peer support</td>
<td>496</td>
</tr>
<tr>
<td>Unit</td>
<td>Amt</td>
<td>Ratio</td>
<td>Notes</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5

**Least Important to the Participants (Overall)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-Item</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I think of my gym teacher as a role model for me.</td>
<td>Teacher as a significant other</td>
<td>177.0</td>
</tr>
<tr>
<td>2</td>
<td>My gym teacher knows some personal things about me.</td>
<td>Teacher as a significant other</td>
<td>207.0</td>
</tr>
<tr>
<td>3</td>
<td>Only girls are in my gym class.</td>
<td>Other</td>
<td>215.0</td>
</tr>
<tr>
<td>4</td>
<td>My gym teacher shares his/her personal experiences with me.</td>
<td>Teacher as a significant other</td>
<td>233.5</td>
</tr>
<tr>
<td>Topic</td>
<td>Details</td>
<td>Example</td>
<td>Result</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>Title</td>
<td>Description</td>
<td>Example sentence</td>
<td>Conclusion</td>
</tr>
<tr>
<td>Date</td>
<td>Notes</td>
<td>Additional notes</td>
<td>Additional notes</td>
</tr>
<tr>
<td>Notes</td>
<td>Additional notes</td>
<td>Additional notes</td>
<td>Additional notes</td>
</tr>
</tbody>
</table>
out of the four statements. This result may have reflected the participants' current physical education teachers and not what they would perceive as the ideal.

An additional analysis between the two schools has been presented here. The following tables illustrate the Q-items most and least important to the adolescents from their respective schools. Johnsberg Senior Elementary's top four Q-items ranked to be the most important were illustrated in Table 6. The dominance of peer support in that chart was clear, as three of the four Q-items were within that category. Once again the distribution between the 1st and 2nd ranked Q-items was significant. That represented the overwhelming importance of peer respect amongst the participants.

Table 7 illustrates Johnsberg participants' lowest ranked Q-items. All four statements came from the topic of teachers as significant others. During the administration of the Q-sort the participants continually referred to their male teacher as "evil" or called him "monster". As a result, these Q-items reflected their perceptions of their present physical education teacher; the results may have been different if the participants had another educator.
Table 6

Most Important to Johnsberg Senior Elementary School Participants

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-item</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My friends show they respect me.</td>
<td>Peer support</td>
<td>370.0</td>
</tr>
<tr>
<td>2</td>
<td>I can look in the mirror and feel good.</td>
<td>Meaningful connections to the body</td>
<td>328.5</td>
</tr>
<tr>
<td>3</td>
<td>I hear my classmates cheer me on.</td>
<td>Peer support</td>
<td>321.5</td>
</tr>
<tr>
<td>4</td>
<td>My classmates say, “That was good”, or “Great job!”</td>
<td>Peer support</td>
<td>309.0</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td>Lab No</td>
<td>Notes</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>1/01</td>
<td>New project start</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/15</td>
<td>Review of project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/01</td>
<td>Project update</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/15</td>
<td>Lab 1 results</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/01</td>
<td>Adjustments made</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/15</td>
<td>Project progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/01</td>
<td>Final review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/15</td>
<td>Project completion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7

**Least Important to Johnsberg Senior Elementary School Participants**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-item</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My gym teacher knows some personal things about me.</td>
<td>Teacher as a significant other</td>
<td>66.5</td>
</tr>
<tr>
<td>2</td>
<td>I think of my gym teacher as a role model for me.</td>
<td>Teacher as a significant other</td>
<td>67.0</td>
</tr>
<tr>
<td>3</td>
<td>My gym teacher shares his/her personal experiences with me.</td>
<td>Teacher as a significant other</td>
<td>82.5</td>
</tr>
<tr>
<td>4</td>
<td>My gym teacher gives me individual feedback.</td>
<td>Teacher as a significant other</td>
<td>102.5</td>
</tr>
</tbody>
</table>
### Table 8

**Most Important to Olar Creek Senior Elementary School Participants**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-item</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My friends show they respect me.</td>
<td>Peer support</td>
<td>288.0</td>
</tr>
<tr>
<td>2</td>
<td>I am successful in gym class.</td>
<td>Curriculum content</td>
<td>252.0</td>
</tr>
<tr>
<td>3</td>
<td>I help others with something that I am good at.</td>
<td>Meaningful connections to the body</td>
<td>241.5</td>
</tr>
<tr>
<td>4</td>
<td>My gym teacher shows he/she respects me.</td>
<td>Teacher as a significant other</td>
<td>230.0</td>
</tr>
</tbody>
</table>
null
Table 9

Least Important to Olar Creek Senior Elementary School Participants

<table>
<thead>
<tr>
<th>Rank</th>
<th>Q-item</th>
<th>Topic</th>
<th>Total Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am hugged by my friends in gym class.</td>
<td>Peer support</td>
<td>68.5</td>
</tr>
<tr>
<td>2</td>
<td>Only girls are in my gym class.</td>
<td>Other</td>
<td>71.0</td>
</tr>
<tr>
<td>3</td>
<td>I have a female gym teacher.</td>
<td>Teacher as a significant other</td>
<td>102.0</td>
</tr>
<tr>
<td>4</td>
<td>I think of my gym teacher as a role model for me.</td>
<td>Teacher as a significant other</td>
<td>110.0</td>
</tr>
<tr>
<td>ID</td>
<td>Description</td>
<td>Action 1</td>
<td>Action 2</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>1300</td>
<td></td>
<td></td>
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<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>77</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 8 reflects the participants from Olar Creek Senior Elementary’s top four rankings of the Q-set. That table is the best rounded. It reflects all of the variables involved in the study. Peer support’s statement my friends show they respect me again was ranked number 1.

Illustrated on Table 9 are the least important Q-items perceived by the participants in Olar Creek. Once again there is a diverse spectrum of topics involved. Interesting, two of the three items dealt specifically with gender.

Results from Q-sort: Subsequent Analysis

Table 10 represents those Q-items that complied with the intrinsically validating criteria. There were only 3 out of 28 or 11% of the Q-items that were deemed intrinsically validating. All of these Q-items were categorized under meaningful connections to the body. There was significant distribution between each of these Q-items in terms of total ranking score.

Table 11 illustrates the Q-items that were deemed extrinsically validating. In total 19 out of 28 or 68% of the Q-items fell within the perimeters for extrinsically validating statements.
Table 10

Intrinsically Validating Q-item Rankings

<table>
<thead>
<tr>
<th>Q-item</th>
<th>Total Ranking Score</th>
<th>Rank within Intrinsic Validation</th>
<th>Overall Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can look in the mirror and feel good.</td>
<td>535.0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>I know I can rely on my body.</td>
<td>443.5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>I learn about my self and my body.</td>
<td>291.5</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Reactor</td>
<td>Power of Reactor</td>
<td>Type of Reactor</td>
<td>NUCL.</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 11

Extrinsically Validating Q-item Rankings

<table>
<thead>
<tr>
<th>Q-item</th>
<th>Total Ranking Score</th>
<th>Rank within Extrinsic Validation</th>
<th>Overall Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>My friends show they respect me.</td>
<td>658.0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>I help others with something that I am good at.</td>
<td>498.0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I hear my classmates cheer me on.</td>
<td>496.0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My gym teacher shows he/she respects me.</td>
<td>495.5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My Classmates say, “That was good” or “Great job!”</td>
<td>490.5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I can say something positive to someone else in my class.</td>
<td>488.0</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I am successful in gym class.</td>
<td>472.0</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I have input into what we do in my gym class.</td>
<td>470.5</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>My classmates say “That is okay; try it again, we have lots of time.”</td>
<td>470.5</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>I hear my classmates clap when I have done something well.</td>
<td>457.0</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>I have opportunity to try to learn new things in gym.</td>
<td>435.0</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>My classmates pat me on the back when I do something well.</td>
<td>390.0</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>I know that as girls we are all different.</td>
<td>375.5</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>My gym teacher is open and honest with me.</td>
<td>371.0</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>I am hugged by my friends in gym class.</td>
<td>265.0</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>My gym teacher gives me individual feedback.</td>
<td>260.0</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>My gym teacher shares his/her personal experiences with me.</td>
<td>233.5</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>My gym teacher knows some personal things about me.</td>
<td>207.0</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>I think of my gym teacher as a role model for me.</td>
<td>177.0</td>
<td>19</td>
<td>28</td>
</tr>
<tr>
<td>Date</td>
<td>Title</td>
<td>Description</td>
<td></td>
</tr>
<tr>
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<tr>
<td>1</td>
<td>Title 1</td>
<td>Description 1</td>
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<td>2</td>
<td>Title 2</td>
<td>Description 2</td>
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<td>3</td>
<td>Title 3</td>
<td>Description 3</td>
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<td>Title 4</td>
<td>Description 4</td>
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<td>Description 5</td>
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</tr>
<tr>
<td>6</td>
<td>Title 6</td>
<td>Description 6</td>
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<tr>
<td>7</td>
<td>Title 7</td>
<td>Description 7</td>
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<td>8</td>
<td>Title 8</td>
<td>Description 8</td>
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<td>9</td>
<td>Title 9</td>
<td>Description 9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Title 10</td>
<td>Description 10</td>
<td></td>
</tr>
</tbody>
</table>
Out of the total 28 Q-items, 6 or 21% did not meet the criteria for either intrinsic or extrinsic validation. Within this percentage, all Q-items from the topic other were included. All of the Q-items from peer support fell within extrinsic validation. Teachers as significant others posted 6 out of 9 Q-items within this criteria, while 3 out of 4 from curriculum content and 2 out of 5 from meaningful connection to the body were included.

The ranking of the extrinsically validating Q-items illustrated that 3 out of the top 5 were housed in peer support, teachers as significant others contributed 1 in the top 5. When reviewing the top half of Table 11, 5 Q-items were under the topic of peer support, 1 each came from teachers as significant others and meaningful connections to the body, and two were contained in curriculum content. Teachers as significant others contributed 4 out of the 6 Q-items to the lower half of this table.

**Descriptions of Most Important Q-Items**

A description of the most important Q-items deemed by the adolescent participants is included here. It was imperative to reflect the perceptions of the participants in this study rather than imposing
the researcher's perspective. In order to do that the adolescents' words were utilized to be accurate and sensitive to their insights. The descriptions were captured during an encouraged discussion by four of the adolescents who participated in the Q-sort. The young girls approached the dialogue in an open manner.

It is important to me when ...

**My friends show they respect me.**

*This means that your friends do not put you down or make rude comments to you. They do not treat you awful, rather they are nice to you. Friends show they respect you by sticking up for and supporting you. This respect develops as a trusting relationship grows. Being truthful is important, it helps to develop the respect. You can share your opinions with a friend that respects you and they do not pass judgment on you. This respect is a mutual thing. You have to respect your friends and yourself first before they will respect you. Sometimes this respect is gained right away, other times it must be developed as the relationship develops.*

**I can look in the mirror and feel good.**

*This is really important because many adolescents do not feel this way. Feeling good is about how you feel inside as well as looking good on the outside. You should be proud of who you are as a person or who you plan to*
become. It has to deal with self-confidence. If you feel good and have high self-esteem, then people will respect you and therefore you feel good about yourself. It is important to look in the mirror and see the positive things, not always criticizing yourself. You should have at least something that you like about yourself. It is important to treat yourself well, eat healthy, and work out. It is best to accept yourself but thoughts of improvement will help you set goals.

I help others with something that I am good at.

This is important because it makes you feel like you are needed. Others will benefit from you and your knowledge and talents. Helping others may also assist you in making new friends. Helping your classmates is important in gym class because sometimes the teacher is neglecting those who are not as able as others. Some people will just help while others need to be encouraged. The person receiving the help would enjoy it and learn more if they were not made to feel inferior and the help was voluntary.

I hear my classmates cheer me on.

This is important to receive a feeling of pride. It motivates you to try your best and want to do the activity or sport even more. This also gives you a positive feeling about the activity and you gain more confidence. You may get this support if you are successful at the activity or just trying to improve. These cheers sometimes just happen in a physical education class and you know that you are doing a good job. This type of support makes the class into a very positive environment. Sometimes you cheer on people who you are not very close to when every one else cheers them on. Therefore the support is not
necessarily just from your close friends. This is great because it helps to develop friendships. Choosing partners in the future is also easier.

My classmates say “That was good”, or “great job”.

This makes you feel successful even if you did not succeed, because at least you tried. These statements make you feel stronger, mentally, and emotionally. The strength reflects not being weak rather than overpowering others. These statements are important since they will let the participants enjoy themselves more.

My gym teacher shows he or she respects me.

If this occurs then it will make you more motivated to do well. Many times physical education teachers will neglect you if you are not successful at something; this is when the most support is needed. Teachers know that their students have weaknesses and strengths, therefore they should not leave us when we are struggling. If you can respect your teacher then he or she will respect you and your relationship will be successful. To have a successful relationship cooperation is involved. The teachers should also cheer on the students and not be negative towards them. An example of this is centering you out, this makes you feel like crap. The respect in your relationship must be real and truthful, therefore genuine. This comes from treating you like a human and not a slave. Respect also comes from knowing and understanding that the girls may want to do similar things as the boys. This respect would come easier if the teachers made the learning more fun.
I am successful in gym class.

It is important to be able to do things that you are good at but also to try to improve on other activities. You will have success if you try your best. You can have success in gym class with things other than the physical. Cooperation, communication, creativity, team work, strategies for games, and their rules are other areas that you can be successful in. Therefore physical education is not just for the physical, but also for the mental and social aspects of ourselves. Physical education makes you feel good about yourself because you are good at something. Hopefully if you do not succeed physically you have fun trying and interacting with your classmates. You can also be successful in gym class if you have an opportunity to choose which activities that you would like to do. This makes you feel important and have some sense of responsibility.

Interpretations of Initial Analysis

An individual’s perception was key when developing the characteristics of one’s self. These characteristics made the individual unique. According to Oosterwegel and Oppenheimer (1993), the closer the child aged to 12, the more important perceptions were. The participants in this study ranged in age from 12 to 14, so their perceptions of themselves, others, and what they imposed upon the Q-sort were important. These perceptions emerged in the ranking of the
When creating machine learning models, it is important to balance model complexity and the amount of training data.过多的模型复杂度可能导致过拟合，而数据不足可能导致欠拟合。

在神经网络中，深度学习通过堆叠隐藏层来提高模型的表示能力。然而，过多的深度可能会导致梯度消失或爆炸问题。

解决过拟合的一个常用方法是使用正则化技术，其中L1和L2正则化是最常见的。L1正则化会倾向于产生更稀疏的权重，而L2正则化则倾向于均匀地惩罚所有权重。

在模型训练过程中，常见的优化算法包括梯度下降、随机梯度下降和动量方法。这些方法通过迭代更新模型参数来最小化损失函数。

为了防止模型在训练集上表现良好但在测试集上表现不佳，可以采用交叉验证或数据集分割等方法来评估模型的泛化能力。

最后，模型的性能评估通常依赖于准确度、精确度、召回率和F1分数等指标。在选择模型时，还需要考虑实际应用中的可解释性和实际成本。

总的来说，构建和评估机器学习模型是一个迭代过程，需要不断调整模型结构和超参数，以达到最佳性能。
Q-items but were developed as the dialogue with the insight group reflected their views. It is important to note that not all female adolescents are the same and the findings previously viewed reflected only the individuals involved. The adolescent voices were heard during a small gathering. In their own words they described what each of the highest ranked Q-items meant to them. This dialogue raised their awareness of their learning environment, about themselves, and their struggles.

The results from the Q-sort clearly supported the literature surrounding peer support. Salokun (1994) stated that the peer group became the main source of influence during adolescence. The overall ranking of the Q-items placed six out of the eight available in peer support within the top 10. The Q-item *my friends show they respect me* was ranked as most important overall and within each of the schools that participated. It provided evidence that these participants wanted to have the support of their adolescent subculture. This reflected that the adolescent females cared about how they were treated.

The highest ranked Q-item, *my friends show they respect me*, was defined by the insight group. Aspects of support, honesty, trust, and openness were incorporated into the meaning of a relationship filled
with respect. Many times the girls would express concern that the respect had to be mutual. According to the insight group, to have respect from a peer, one in turn must respect them.

At no point during the two meetings with the insight group did any of the participants mention the importance of self-respect. Oosterwegel and Oppenheimer (1990) established that an individual with a healthy self-concept would distinguish between how she felt and how she thought that others felt. Burns (1982) also stated that when the self-concept was forming there was a shift from external reinforcement to internal self-reinforcement and that generally that takes time and maturity. The participants in the insight group did not appear have reached that level of maturity.

As significant others gave and received feedback, their gender affected their perception of that feedback. Granleese et al. (1989) stated that more females depended on males for confirming their self-concept, for instance the self-perception of the rigid roles that society has inflicted on a gender, male or female. Society affected self-concept through handing down its presupposed cultural patterns; it also affected gender relations throughout the individual's life stages. For adolescents it seemed that the most important interaction during
that stage in their life came from the adolescent subculture. The personality traits of those who interacted within the adolescents' group assist in the formation of the self-concept, according to Katona-Sallay (1990). This may have been a continuous circle since those adolescents, male or female, were influenced by their families and also the community. This equated that gender and self-concept were intertwined with the larger society, their family cultures, and their adolescent subcultures.

One hypothesis integral to this study was that educators affected the self-concepts of their students, which was supported by Pekrun (1990). This research reflected that the teachers as significant others were not the most important to these participants. Eight out of nine descriptions in that topic ranked in the lower half of the Q-sort overall. The only high-ranking Q-item was my gym teacher shows he/she respects me, ranked number 5. The insight group described what the Q-item my gym teacher shows he/she respects me meant to them. A mutual respect was necessary to develop this type of relationship with their teacher, which would be shown through the educator's motivation and support. It was important that the teacher
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realized that as girls they had different strengths and weaknesses. They were "not only different from the boys but different from each other."

The educator realizing and being sensitive to differences was a topic of conversation that the girls in the insight group felt strongly about and was ranked 11th overall. Under the topic of meaningful connections to the body, the Q-item *I know that as girls we are all different* was ranked 16th. Therefore, it was more important to the participants that the physical education teacher recognized these differences. Noting that the adolescent females were all different may have helped to alleviate the notion that they all must present themselves, dress, and talk a certain way in order to be labeled "normal" within the constructs of society. Therefore, the educator's role was an important one in fostering a healthy self-concept.

In physical education, constructive feedback is imperative to create a positive environment. Feedback from the educator was an issue discussed by the insight group. They voiced frustration and anger with their teachers if they were without help, yet the Q-item that pertains to that was ranked 24th for importance out of 28 Q-items. When the girls needed feedback and encouragement, their educators would abandon them to be with the more able student.
natural language processing is a rapidly advancing field that involves the design and implementation of algorithms that allow computers to understand and interpret human language. This field has applications in a wide range of industries, from customer service to healthcare to natural language grounding. The goal of natural language processing is to enable computers to effectively process and understand written or spoken language, which can be used to improve human-computer interactions or automate tasks that are currently performed manually.
According to Oosterwegel and Oppenheimer (1993) this would influence the formation of the self-concept, through three factors. The amount of information that was involved in the interaction, the consistency of the information, and the ease of interpretation would influence the self-concept. When the teacher provided feedback and attention only to those who were succeeding, then the information was not consistent and was not easily integrated due to the discrepancies in the feedback.

The depth of bitterness over special treatment may have resulted from years of physical education teachers’ hidden curriculum. This hidden curriculum may have been reflective of cultural bias toward the male student athlete. This would have left the young girls to fend for themselves in this educational environment. The most common result would have been for the girls’ interest in physical education to dwindle. According to Shaw et. al (1995), if females were involved in some sort of physical activity it would heighten their sense of self. A positive physical education environment with open communication and feedback would have helped to alleviate those feelings of frustration. Sharing with and receiving personal information from their physical education teachers were ranked 27th and 25th respectively.
Disclosure at that age may not have felt appropriate because of the power differential between the two parties involved.

It should be noted that the participants from one school felt very negative about their teacher. They termed him "evil" and were demeaning towards not only his abilities but also him as a person. This attitude was reflective in their results. Their past experiences with their teacher influenced how they ranked the Q-items, and their results may have differed if they had experienced another physical education teacher. Oosterwegel and Oppenheimer (1993) noted that an individual's predisposed barrier against a gender due to past experiences would affect their perceptions. The gender barrier may have been constructed in another environment, such as the home, or the community, or during past physical education experiences.

The topic of curriculum content was frequently discussed within the insight group. Being successful was imperative to these participants. *I am successful in gym class* was ranked 8th overall for importance. The girls in the insight group had a mature view on this aspect. Not only did they want to be successful, but they wanted to actively pursue improving their abilities. The participants included a wide variety of areas where they felt a student could achieve success
in physical education. The list included the physical realm, cooperation, communication, creativity, team work, and strategies. This represented a holistic view of physical education. They neglected to include problem solving as part of their holistic view. This may be representative of the type of physical education classes that they experienced. During the discussion, the girls mentioned that those who did not like or participate in gym were ones who did not interact with their peers. This statement drew the connection between improved communication and the physical education environment.

The girls also stressed the importance of having input into the curriculum. Having the opportunity to make decisions that affected themselves and others within the class allowed these females to achieve a sense of empowerment. The opportunity to voice their opinions helped establish the sense of security in their decisions.

The 2nd highest ranking Q-item was I can look in the mirror and feel good. These girls enlightened the researcher about the severity of their struggles as adolescents. Their concern for friends in despair was overwhelming. Media's presentation of the female physique was blamed by the girls. One adolescent remarked, "I think that it is all from the media. I think if the whole school should just cut out TV for a month or
null
maybe a year and you would get a lot better marks and you would feel a lot better about yourself. There wouldn’t be as many cliques and stuff and we could work on being together instead of being against each other.”

Dealing with somatics, or meaningful connections to the body, the adolescents discussed a sense of pride. Talbot (1986) addressed that females must develop a sense of value towards their body. The girls mentioned being proud of one’s looks; more important to most of these girls was being proud of who they were and who they planned to become. This pride was illustrated through their actions towards others. Yet the respect from others was what made these girls feel confident about themselves, not self-respect.

When the insight group discussed assisting others with something in which they excelled, feelings of accomplishment and worth were developed. Talbot (1986) and Salokun (1990) stressed that a lack of appreciation for the body tended to lead to a drop in physical education participation. The high ranking of this Q-item supported that this need for self-worth was important to these young girls.

The girls felt that they took on a supportive role for their teachers while assisting others. At times girls need assistance, and it was important to the participants when it either came from their
peers, or they could have been in a position to help. That desire to assist others may resemble the social code of nurturing for females.

*I hear my classmates cheer me on* and *My classmates say “That was good”, or “great job”* were two Q-items that helped establish a sense of pride through success. The sentiments from the insight group were that this verbal support from peers would be a motivating factor. Even if the student was not successful at completing the task, she felt successful because she tried. This support from classmates helped to develop feelings of strength of character. One insight group participant explained it as, *"It is not important to be very strong as a person but not to be weak."*

**Interpretations of Subsequent Analysis**

Peer support was a main source of influence to these participants and consistently ranked high in the Q-sort as extrinsically validating. Of the 8 statements, 5 ranked in the top half of the extrinsically validating Q-items; the subsequent analysis confirmed the initial analysis. According to Ishiyama (1995) the “basic premises is that people are motivated to seek self-validation, that is, the affirmation of one’s sense of self and positive valuing of one’s unique and meaningful personal existence” (p. 135). These results illustrate
that peer support experiences were viewed as more important than those in the teacher as significant other topic. The teacher as a significant other topic included 6 out of 9 Q-items as being extrinsically validating to the participants. 4 of these were ranked in the lower half of the extrinsically validating statements that coincided with the initial analysis of the data.

The intrinsically validating Q-items all derived from the same topic, meaningful connections to the body. This was due to the connection of this topic to the self. There were no outside agents involved in any of the Q-items. Curriculum content had the environment or activities as other sources of validation. Teachers as significant others and peer support involved relationships with other individuals. The topic of other included Q-items that also dealt with more than the self.

The 3 Q-items that were deemed intrinsically validating illustrated large distributions between each total ranking score. This illustrated that intrinsically validating statements could not be generalized. These Q-items were not ranked consistently higher or lower than other Q-items. With the established criteria for validation
it should be noted that both intrinsic and extrinsic validating statements did not alter the overall ranking of the Q-items.

This chapter provided insight into the results of the Q-sort and the descriptions from the discussion group. The subsequent analysis with validation as a theme proved to support the initial analysis of the data. The following chapter summarizes this research.
CHAPTER FIVE: SUMMARY AND IMPLICATIONS

This chapter summarizes the research. An attempt was made to correlate the results to the rationale for the study. After establishing these links, future implications and recommendations from this research are discussed.

Summary

There were multiple purposes to this research. The initial purpose was to achieve a greater understanding of the role that physical education plays in female adolescents' self-concept. The secondary focus was personal, as I hoped to facilitate my understanding of the self-concept to enhance my effectiveness as an educator. Overall, this research was developed from the desire to understand.

There are many environments that influence the self-concept; school and home are only two. Self-concepts are dynamic in nature. They are apparent as required; therefore those that are not functioning are peripheral. Due to the dynamic nature of the self-
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concept, an attempt to focus on the educational environment only during this research proved to be futile.

It is important to note that considering validation as a theme in the wording of the Q-items did not alter the findings of this research. According to Ishiyama (1995), "self-validation is a complex psychoecological process which represents both one's internal phenomenological world and one's transaction with the external world" (p. 135). It is strongly influenced by one's socio-cultural environment and self-identities. Utilizing validation in conjunction with self-concept development is an interesting notion and one that may bring value to this type of research.

One of the research questions for this study is understanding how educators affect their students' self-concepts and what kinds of relationships they have. These female adolescents care about how they are treated. It is important to them to have respect from their teacher, to feel important. However, the results of the Q-sort illustrate that the physical education teachers are not particularly important to these young girls on a personal level. As I reflect upon my relationships with my physical education teachers, this result amazes me. The relationships that I remember were full of intimate
conversations and disclosure. As I pondered this difference, I came to realize that I was in high school when these relationships had begun. It is likely that the intimate relationships with peers at this age is much more prevalent.

In support of the literature, this research illustrates that the peer is the most important factor to the female adolescent participants. Peers appear to be a great influence on self-concept and its development. Having respect from peers is most important to these young females. A mutual respect is something that is earned and developed through time. Being able to share opinions with someone nonjudgmental may instill confidence and pride in these adolescents. The pride comes with the understanding that their opinions have relevance. Sharing their ideas with others that they may not associate with also builds confidence.

Receiving supportive words from peers is ranked 4th overall by the adolescent females. It is important to encourage students to be supportive of one another even if they are not close friends. The participants in the insight group feel an increase in confidence as a response to cheers from all students, not just close friends. This motivation also enhances the feelings of success. Gallander Wintre
and Crowley (1993) state that social support provides the essential foundation to the development of the self-concept. Encouragement and support from classmates and friends are important in developing an environment free of self-doubt and anxiety.

There is only one Q-item in the top four that is not from the peer support variable. The topic of meaningful connections to the body, looking in the mirror and feeling good about one’s self, received an overall ranking of 2nd. It is not surprising that an element of body-image is ranked so high due to the media’s role within our society. These adolescent females relate that feeling good about one’s self not only deals with the outside of the body but also the inside. These young girls are concerned about who they are now and who they will become. There is a genuine desire to be proud of themselves.

The physical education curriculum is not extremely important to these young adolescents. During the conversation with the insight group, they were adamant about being respected by peers and teachers. From this conversation they become passionate about having input into what they cover in their physical education course. Through communication they realize that respect also includes some element of collaboration. According to Smeal, Carpenter, and Tait
(1993) allowing students to voice their opinions in a mutually supportive environment builds cooperative structures into the learning environment. Giving these females the opportunity to share their ideas empowers them.

The most fulfilling aspect of this research is the insight group meetings. Each girl is unique and brings rich insights into the conversations. By having these discussions they reaffirm their personal strengths and mutual struggles. By listening to these voices we can learn from the details of their lives and their perceptions of our society.

Recommendations for Future Research

If I were to repeat this study, a modification would be to adjust the depth of understanding of the self-concept and how it is connected to physical education. In order to accomplish this, I would continue with a qualitative study and include more insight group discussions. In order to get a balanced view on the Q-items, a cross-section of ages could be incorporated into the insight group. Another interesting adaptation would include a larger insight group. The most compelling information is gathered during this stage of the research.
To develop an understanding of how the self-concept develops over time, a wider range of adolescent ages could be incorporated. I would suggest that the ages be sectioned into a couple of years per group to observe the development; for example ages 12 to 14 together, 15 to 16, and 17 to 18 together.

It would be interesting to receive information on past physical education teachers as well as participants' current teachers to correlate students' rankings to experience. If this were part of another study, then teaching pedagogy would be closely examined. This research could provide a closer examination into what is important in the physical education environment to the adolescent females.

Due to the nature of this study and its' focus on adolescent females, I would further recommend that a feminist theoretical framework be included in future studies. Riddell (1989) related that feminist research consists not only of research on women but for women. This research focused on adolescent females in hope of incorporating these findings into a more positive physical education environment. Kemp and Squires (1997) characterized feminist theory as a critical analysis of gender dynamics and described the multifaceted contingencies of gender identity. These areas may
include the critical constructs that assist in the self-concept development. The premise that culture and society influenced the unconscious development of females formed the basis for psychoanalytical feminist theory that would be conducive to this kind of research.

Implications

The initial success of this research is through the adolescent participants. The self-reflection of the insight group is rewarding to witness. It is hoped that those adolescent participants not involved in the insight group experienced some reflection as well.

This research will contribute to the literature available on this subject. This Canadian focus will assist in diversifying the literature. It is hoped that the focused terminology will assist in the clarification of the terms, self-concept and adolescents.

This research paves the way for additional studies. A Q-sort focusing on adolescent males could follow, culminating in a gender study. This would view the similarities between the participants on what they view as most important to them.
By utilizing these methods and procedures, a better understanding of the adolescents' perception is developed. By understanding what aspects of physical education are most important to the girls, this will allow the educators to incorporate these elements into their classes. In turn, this will help to establish a positive physical education environment that will assist in enhancing the self-concepts of female adolescents.
References


Appendix A

Letter of Permission

June 12, 1997

Dear Parent:

As a physical education specialist and a masters student at Brock University, I am keenly interested in enhancing female adolescents' self-concept in physical education. Under the supervision of Dr. Nancy Murray, also of Brock University, I am currently conducting a research project in this area. The purpose of the study is to explore the relationship between female adolescents' self-concept and physical education classes.

The adolescents that participate will be requested to complete a Q-sort. This requires the adolescent to sort a list of 28 descriptors in order of importance to them. The topics involved will be 1) peer support in the physical education class, 2) physical education teachers as significant others, 3) physical education curriculum, and 4) meaningful connections made to the body through physical education.

Your child's name will not be connected with any of her responses on the Q-sort. An insight group will be developed with four of the participants to discuss the issues as a follow-up to the study. If you have any questions or concerns about the study please feel free to contact me at 682-9653 or Dr. Nancy Murray at 688-5550 extension 4366.

Sincerely,

Janet Swain
Informed Consent Form for Adolescents

Brock University Masters of Education Thesis

Title of Study: Adolescent Females' Self-Concept and Physical Education: A Q-Sort Analysis

Researcher: Janet Swain

Supervising Professor: Dr. Nancy Murray

I, __________________ (parent or guardian), hereby consent to my daughter __________________ (name of daughter) participating in the research project entitled Adolescent Females' Self-Concept and Physical Education: A Q-sort Analysis. The purpose of this study and the procedures to be followed have been explained to me in the enclosed letter which was provided by the researcher. I have been given a contact name and phone number to ask questions that will be answered to my satisfaction.

I understand that participation is voluntary and that my daughter may withdraw from the study at any time and for any reason without penalty.

I understand that there is no obligation to participate in any aspect of this project that my daughter may consider invasive.

I understand that all personal data will be kept strictly confidential and that all information will not be associated with any name. I understand that only the researchers named above will have access to the data.

Signature of parent or guardian ________________________________
Date __________________

Feedback about the use of the data collected will be available. A written explanation will be provided for you upon request.

Thank you for your help. Please take one copy of this form for further reference.

********

I have fully explained the procedures of this study to the above participant.

____________________ (Researcher Signature) _____________ (Date)
Appendix B

Excerpt from First Set of Interviews Curriculum Coordinator

J- What makes up self-concept?

H- I would say things that have been told at home. For example, "You are a stupid kid. You can't do anything, you're dumb, you're stupid, you'll amount to nothing." Well, if you are told that enough you buy into that. So either the praise, the positive comments they get at home and the negative comments they get at home in the home environment I think leads them to some type of feeling about themselves.

I think how they see themselves in a mirror. Whether they see themselves as pretty, cute, beautiful, ugly, fat, skinny, I think that has something to do with it. I think the comments that other kids make to them, and kids I know even at this level are very cruel. So comments from their peers.

The way people treat them, either with respect or without respect. I think some of it is just natural. I talked to my kids about having a quiet cockiness about yourself. I think it is really important to think that you are really good. You don't go out and say it. Like I say to my kids that you don't go around the school saying that we are the best volleyball team in the world, or I'm the best volleyball player in the world but you go home at night and you say it to yourself. You tell yourself that you are good. I'm a good hitter, I'm a good passer, I'm a good setter. I am very good, I am very skilled and you believe that. I call that a quiet cockiness, you don't tell people but you believe it. I get my kids to go home at night before a game and I say instead of lying in bed saying, "I can't serve, I can't hit, my hitting was off today," you lie there
Appendix C

Q-Set
All About You

1. When is your birthday?

2. Where do you live?

3. Who do you live with?

4. If you have any brothers or sisters, how old are they?

5. Were you born in Canada? If not where?
It is important to me when ...

my gym teacher is open and honest with me.

It is important to me when ...

my gym teacher is knowledgeable.
It is important to me when ...

my friends show they respect me.

It is important to me when ...

my gym teacher participates in class.
It is important to me when ...

my gym teacher know some personal things about me.

It is important to me when ...

my gym teacher shares his/her personal experiences with me.
It is important to me when ...

my gym teacher shows he/she respects me.

It is important to me when ...

I think of my gym teacher as a role model for me.
It is important to me when ...

my gym teacher gives me individual feedback.

It is important to me when ...

I have a female gym teacher.
It is important to me when ...

I hear my classmates clap when I have done something well.

It is important to me when ...

I am hugged by my friends in gym class.
It is important to me when ...

my classmates say, "That was good" or "Great job!"

It is important to me when ...

I can say something positive to someone else in my class.
It is important to me when ...

my classmates say "That is okay, try it again, we have lots of time."

It is important to me when ...

I hear my classmates cheer me on.
It is important to me when...

my classmates pat me on the back when I do something well.
It is important to me when ...

I now I can rely on my body.

It is important to me when ...

I help others with something that I am good at.
It is important to me when ...

I learn about my self and my body.

It is important to me when ...

I know that as girls we are all different.
It is important to me when ...

I can look in the mirror and feel good.
It is important to me when ...

I have opportunity to try to learn new things in gym.

It is important to me when ...

I have input into what we do in my gym class.
It is important to me when ...

I am successful in gym class.

It is important to me when ...

my gym teacher knows that all the students are different.
It is important to me when ...

boys are in my gym class.

It is important to me when ...

only girls are in my gym class.
Appendix D

Cover Letter

Adolescent Females' Self-concept and Physical Education: A Q-Sort Analysis Debriefing Form for Adolescents

I would like to thank you for your time and co-operation in participating in the study on female adolescents' self-concept and physical education. The data you have provided will be analyzed with the data from all other participants in order to determine what relationships exist between self-concept and physical education.

The results of this study will be made available to the School Board and each of the individuals who have participated. Please feel free to contact me at 682-9653 if you feel the need to discuss any of the issues that were dealt with on the Q-sort.

Please contact me if you are interested in a group discussion, with your peers, on the subjects covered by the study.

Sincerely,

Janet L. Swain
Appendix E

Excerpt from Insight Group

L- You have to respect them first. What was the question again?
J- How do you get respect?
L- Oh by like showing them that you have respect for them by treating them, I don’t know, good.
J- So it is a mutual thing? You have to respect them so they will respect you?
L- Yah, you have to have the relationship.
J- Anybody else? Do you think this just happens?
L- No.
J- Does it take a long time to get respect from your friends?
L- Like sometimes you can have it right away. If they know that you are a nice person and everyone else says that you are nice then they can trust you.
J- Let’s go on to the next one. If you think of anything else for the respect one we will come back to that. I can look in the mirror and feel good. Even though when we were looking at them I heard some chuckles that one was number 2 out of everybody that did this study. That was the second largest one that people felt was important. So what does that statement mean to you...
L- I think that it is kind of shocking because most people at our age are all like I don’t know. If they eat something they will go to the washroom and throw it up. And slitting their wrists and everything. Trying to kill themselves and stuff.
J- Now do you think that’s number 2 because that is important to them. To look in the mirror and feel good?
L- OH. That could be right too. Maybe somebody misunderstood that.
J- Anybody else what that statement means to them?
Appendix F

Q-sort Results

A. I am successful in gym class.
B. I have input into what we do in my gym class.
C. My gym teacher knows that all the students are different.
D. I have opportunity to try to learn new things in gym.
E. My gym teacher is open and honest with me.
F. I have a female gym teacher.
G. My gym teacher participates in class.
H. I think of my gym teacher as a role model for me.
I. My gym teacher is knowledgeable.
J. My friends show they respect me.
K. My gym teacher knows some personal things about me.
L. My gym teacher shows he/she respects me.
M. My gym teacher shares his/her personal experiences with me.
N. My gym teacher gives me individual feedback.
O. Only girls are in my gym class.
P. Boys are in my gym class.
Q. I know that as girls we are all different.
R. I know I can rely on my body.
S. I help others with something that I am good at.
T. I can look in the mirror and feel good.
U. I learn about myself and my body.
V. I can say something positive to someone else in my class.
W. My classmates say, “That was good” or “Great job!”
X. I hear my classmates cheer me on.
Y. I am hugged by my friends in gym class.
Z. My classmates pat me on the back when I do something well.
AA. My classmates say “That is okay try it again, we have lots of time.”
BB. I hear my classmates clap when I have done something well.
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