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AN ANALYSIS OF STUDENTS WITH ORTHOPEDIC DISABILITIES
ATTITUDES TOWARD GENERAL PHYSICAL EDUCATION

DISertation

Presented in Partial Fulfillment of the Requirements
for the Degree Doctor of Philosophy in the Graduate

School of The Ohio State University

By

Daniel Webb, B.S., M.S.

* * * * *

The Ohio State University

2000

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ABSTRACT

Most attitudinal literature on inclusive education focuses on many relevant parties (i.e., teachers, parents, administrators, and students without disabilities) with little focus on students with disabilities (Blinde & McCallister, 1998; Lieberman & Webb, 1999). To address the latter, the purpose of this research study was twofold. First, it was to develop a valid and reliable instrument to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into general physical education (GPE) classes. Second, it was to use the instrument to examine the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes.

The theoretical foundation was Contact Theory (Allport, 1954). Moreover, with the use of Contact Theory, six objectives were met: (1) the development of The Inventory instrument that was to be used to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes; (2) the conducting of a field test to probe the efficient/effective use of The Inventory instrument; (3) recruitment of students with varied orthopedic disabilities who were included in GPE classes across grades 7-12 for participation in the research study’s pilot and principal research thrusts; (4) demonstration of validity and reliability of The Inventory instrument; (5) administration of The Inventory instrument to target participants in the principal research study; and
(6) analysis of the results of the principal research study both descriptively and inferentially.

At the onset of this study, census data pertaining to the number of students with varied orthopedic disabilities who were serviced in public schools across the states of Maryland, Ohio, Wisconsin, and Virginia were obtained from respective state department of education administrators. Based on these data, frame listings of students with varied orthopedic disabilities who were serviced within public schools across the aforementioned states were obtained. Subsequently, research proposal applications to gain access to public schools across the aforementioned states were submitted to state special education directors and public schools’ “Research and Evaluation Committees.” As a result of the submittal of research proposal applications, only two states (i.e., Maryland and Wisconsin) granted the investigator access to their public schools. In addition, permission and consent were obtained from the target schools’ building principals, GPE teachers, and parents or guardians of students with varied orthopedic disabilities.

Development and validation of The Inventory involved three types of validity: (1) face, (2) content, established via a seven member panel of experts, and (3) construct, which involved the use of total scale and three subscales (separate stepwise) utilizing Maximum likelihood (ML) method of extraction factor analysis with orthogonal and oblique rotations. Initially, field testing of The Inventory involved the use of two GPE teachers and five participants who were representative of the target population (i.e., students with varied orthopedic disabilities who were included in grades 7-12). Whereas, the pilot study phase consisted of thirty-four participants with varied orthopedic
disabilities who were included in GPE classes across grades 7-12.

In the principal study, 73 local education agencies across Maryland and Wisconsin involving a sample size of one-hundred and seventeen participants (52 males; 65 females) with varied orthopedic disabilities across grades 7-12 responded to a two subscale, 10 Likert-type item attitudinal instrument (as a result of factor analysis). Scores (i.e., subscores and total scores) of The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education (i.e., The Inventory) served as the dependent variable. An Ex Post Facto research design (Campbell & Stanley, 1963) was employed with the use of survey research data collection methodology (Salant & Dillman, 1994).

Data obtained from The Inventory instrument on the two subscales (i.e., attitude towards peers, and attitude towards physical education teachers) and total attitude scores were analyzed using descriptive statistics (i.e., means and standard deviations), 3-way analysis of variance (ANOVA), and one-way ANOVA to determine associations between such independent variables as grade level, gender, and onset (i.e., congenital or acquired) of disability. In addition, data pertaining to teachers involving: (1) teachers’ gender; (2) number of years teaching physical education; (3) teachers’ certification status; (4) number of students in GPE classes; (5) number of students with disabilities in GPE classes; and (6) the availability of support personnel in GPE classes were analyzed descriptively in the form of frequencies and percentages.
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DEDICATION

To my wife and best friend, Tammy T. Webb, and to my son, Domanique Daniel Webb.

I sincerely thank the both of you for your patience, your unconditional love, and your encouraging smiles when they were most needed.

This degree is not mine alone, but it belongs to us as a family. Thanks be to God!
ACKNOWLEDGMENTS

First and foremost, I give thanks and praise to my Lord and Savior Jesus Christ, who is truly the head of my life. Without God granting me health, strength, and sanity, this dissertation research study would not have been possible to complete. Romans 8:28.

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I sincerely wish to express thanks to my parents, Walter and Lucille, who were my first teachers. Many thanks to the two of you for teaching me the importance of education, and most importantly, thanks for your constant love, support, and words of inspiration. I
love you two with all of my heart, and I thank God for blessing me with such loving and supportive parents. Thanks!!!

To all of my colleagues, Jin Jin Yang, Gloria Elliott, Mike Kozub, Jennifer F. Hodge, Fabio Lisboa, and Julie Maeda, thanks to all of you for your collegial support and for expressing your concerns with regard to the progression of this research study.

Many, many, many thanks to The Ohio State University School of Physical Activity and Educational Service (PAES) secretaries (i.e., Kay Yeager and Cathy Smith) for their assistance during my final oral exam defense with their provision of technological equipment and much needed copies. Thanks to you two for making this possible!!

I also wish to express thanks to "The Twitty" family (William, Jennifer, William II, Baby Wynton, & Renee) for your friendship, fellowships, prayers, and constant words of encouragement. You all have certainly been a blessing to me and my family, and we thank God for allowing us to befriend you all.

Thanks to Pastor Emmett Moore and the Seventh Ave. Community Church family of Columbus, OH. Thanks for providing me and my family with a place of refuge on Sundays, because truly we have grown stronger in the Lord as a result of your ministry.

To my brothers and sisters, thanks for the constant expression of love and support with your long distance telephone calls, letters, and cards. Also, in loving memory of my brother Sammie Webb Jr., and my sister Elaine Webb thanks for the laughter, the love, and support. Someday, we will all meet again!

Many thanks to Dr. Daniel P. Joseph, my undergraduate advisor and friend. Thanks for your continuous mentoring, words of encouragement, and overall support.
I extend thanks to Drs. Patrick DiRocco and Manny Felix for their continuous mentorship and support of my professional aspirations.

Many, many thanks to the state education department administrators across the various states for their approval of my dissertation research proposal. Without you all seeing the relevance of this research study and its impact on the lives of students with varied orthopedic impairments, the completion of this research study would not have been possible.

I am eternally grateful to the building principals across the various states for granting me access to their schools; many thanks to the physical education teachers who participated in the research study; many thanks to the parents of the individuals with varied orthopedic disabilities for providing me with informed consent for the participation of their child; and most importantly thanks to the individuals with varied orthopedic disabilities who gave their precious time to complete The Inventory instruments.

Finally, I dedicate this dissertation to two people who have taught me the importance of life and the importance of time shared. To my loving wife (Tammy T. Webb), and my precious son (Domanique Daniel Webb), thanks for not only being a part of my life, but for actually being my life. Together, we have written another chapter of our life. I thank God for the two of you!!
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Studies in Group Research and Statistical Methods.  
Professors Joe A. Gliem, Janet Henderson, Larry E. Miller, and James R. Warmbrod
# TABLE OF CONTENTS

ABSTRACT ........................................................................................................................... ii  
DEDICATION ...................................................................................................................... vi  
ACKNOWLEDGMENTS .................................................................................................. vii  
VITA ........................................................................................................................................ X  

CHAPTER

1. INTRODUCTION ........................................................................................... 1  
   Placement Concerns ........................................................................................... 4  
   Lack of Acceptance and Attitude Change ..................................................... 6  
   Attitude of Consumers ...................................................................................... 8  
   Theoretical Frame .............................................................................................. 10  
   Need for the Study ............................................................................................. 11  
   Purpose of the Study ......................................................................................... 12  
   Research Questions ............................................................................................ 13  
   Definition of Terms ........................................................................................... 14  
   Limitations of the Study ................................................................................... 15  
   Delimitations of the Study ................................................................................ 15  

2. REVIEW OF LITERATURE ..................................................................... 16  
   Inclusion Movement in United States Schools ............................................... 16  
   Inclusion in General Physical Education ......................................................... 20  
   Reauthorization of IDEA and its Impact on Inclusion .................................. 23  
   Rationale for Attitudinal Assessment ................................................................ 25  
   Contact Theory and its Application in Physical Activity Contexts .............. 27  
   Contact and Attitude Theory Formation in General Physical Education  
     Classes ............................................................................................................. 30  
   Attractiveness and Attitudes ........................................................................... 32  
   Perceived Status, Hindrance and Peer Interactions ........................................ 33  
   Attitudinal Change and Peer Relationships .................................................. 34  
   Contact Effects on Teachers .......................................................................... 35  
   Summary ........................................................................................................... 37  

xii
3. PROCEDURES ........................................................................................................ 43
   Permission and Consent .................................................................................... 43
   Development and Validation of The Inventory .............................................. 50
   Field Testing of The Inventory ...................................................................... 51
   Instrumentation ............................................................................................... 52
   Research Sites ................................................................................................. 59
   Sample Selection .............................................................................................. 59
   Research Design ............................................................................................... 60
   Data Collection ................................................................................................ 61
   Data Analysis ..................................................................................................... 64

4. RESULTS AND DISCUSSION ............................................................................ 66
   Introduction ........................................................................................................ 66
   Face and Content Validity ............................................................................... 69
   Field Testing of The Inventory ...................................................................... 69
   Characteristics of Pilot Study Participants ..................................................... 70
   Item Analysis ...................................................................................................... 73
   Construct Validity ............................................................................................. 79
   Instrument Reliability ....................................................................................... 87
   Characteristics of Principal Study Participants ............................................. 91
   Results and Discussion Across Research Questions ..................................... 92
   Physical Education Teachers’ Characteristics and Teaching Contexts ........ 109

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS .............................. 111
   Summary ............................................................................................................ 111
   Conclusions ...................................................................................................... 123
   Recommendations ........................................................................................... 127

LIST OF REFERENCES ..................................................................................................... 129

APPENDICES ..................................................................................................................... 138
   A. The Ohio State University Behavioral and Social Sciences Human Subject
      Review Committee Approval Sheet ................................................................. 138
   B. Written Consent from Participating Research Sites ...................................... 140
   C. Standard Participation and Consent Forms ..................................................... 144
   D. The Inventory and Administration Protocol .................................................... 149
### LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Demographic Information Pertaining to the Characteristics of Pilot Study Participants</td>
<td>71</td>
</tr>
<tr>
<td>2.</td>
<td>Pilot Study Participants’ Type of Physical Activity Involvement</td>
<td>73</td>
</tr>
<tr>
<td>3.</td>
<td>Means, Standard Deviations, and Chronbach’s Alpha Test of Internal Consistency Results for Subscale One of The Inventory Instrument</td>
<td>74</td>
</tr>
<tr>
<td>4.</td>
<td>Means, Standard Deviations, and Chronbach’s Alpha Test of Internal Consistency Results for Subscale Two of The Inventory Instrument</td>
<td>76</td>
</tr>
<tr>
<td>5.</td>
<td>Means, Standard Deviations, and Chronbach’s Alpha Test of Internal Consistency Results for Subscale Three of The Inventory Instrument</td>
<td>78</td>
</tr>
<tr>
<td>6.</td>
<td>Descriptive Statistics for The Inventory Instrument (n = 103)</td>
<td>80</td>
</tr>
<tr>
<td>7.</td>
<td>Factor Loadings of a Three Factor Model with Oblique Rotations (n = 103)</td>
<td>84</td>
</tr>
<tr>
<td>8.</td>
<td>Pearson r Correlation Coefficients of The Inventory Instrument Scores from its First and Second Administration (n = 117)</td>
<td>89</td>
</tr>
<tr>
<td>9.</td>
<td>Pearson r Correlation Coefficients for Subscale One from the First and Second Administration of The Inventory Instrument (n = 117)</td>
<td>90</td>
</tr>
</tbody>
</table>
10. Pearson r Correlation Coefficients for Subscale Two from the First and Second Administration of The Inventory Instrument (n = 117) 90

11. Demographic Information Pertaining to the Characteristics of Principal Study Participants (n = 117) 91

12. Descriptive Statistics on The Inventory Instrument (n = 117) 97

13. Three-Way Factorial ANOVA of The Inventory Total Scale Scores Across Gender, Grade Level, and Onset of Disability (n = 117) 100

14. One-Way Simple ANOVA of The Inventory Total Scale Score on Students’ Duration of Inclusion into General Physical Education Classes (n = 117) 105

15. One-Way Simple ANOVA of The Inventory Total Scale Score on Students’ Participation in Extracurricular Physical Activities (n = 117) 109
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Simple Scatter Plot Graph of the First and the Second Administration of The Inventory Instrument on a Sample of $n = 117$</td>
<td>88</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

Over the past few decades, there have been varied philosophical shifts in special education with related terminology changes in an effort to establish a universal philosophy that could be understood and practiced across local educational agencies (LEAs) throughout the United States. The mid-1970s are associated with the terms "mainstreaming" and "least restrictive environment" (LRE) in connection with the passage of Public Law 94-142, The Education for All Handicapped Children Act (Federal Register, 1977). According to Sherman (1991), the term "mainstreaming" is not synonymous with the connotation of LRE, although they are often used interchangeably. In particular, Sherman (1991) defined mainstreaming as "an educational placement philosophy based on the belief that a student with a disability should be educated in the LRE in which his/her needs can be met" (p. 36). Therefore, mainstreaming generally refers to the process of placing students with disabilities in general education classes with appropriate instructional support (Meyen, 1990). To the contrary, LRE refers to the legal principle that students with disabilities are to be educated as close as possible to the general education environment with support services provided as needed, with other available placement options (i.e., a continuum of placements) that can best meet the
student’s educational needs (Jansma & French, 1994; Osborne & Diamattia, 1994; Sherrill, 1994).

In the mid-1980s, Madeline Will (then the Assistant Secretary for the Office of Special Education and Rehabilitative Services, U.S. Department of Education) introduced the term “regular education initiative” (REI), which connoted including all students with various types of mild disabilities (e.g., learning disabled, mild mental retardation, orthopedically impaired) into general education classes. In particular, students with varied orthopedic disabilities were among the first group of students with disabilities to be included into general education classes. This was due in part because students with varied orthopedic disabilities often presented no cognitive deficits and were more easily accommodated in general education classes, as opposed to students with other forms of more severe types of disabilities (e.g., severe/profound mental retardation, deaf/blind) (Sawyer, MacLaughlin, & Winglee, 1994). According to Sawyer et al. (1994), students with more severe types of disabilities were often perceived as behavioral problems by some of their peers without disabilities and teachers. To the contrary, students with varied orthopedic disabilities were not perceived as behavioral problems by their peers without disabilities and teachers, thus, they were more easily accommodated and accepted across the general education curriculum (Yaffe, 1979), particularly in physical education (Downs & Williams, 1994).

Specifically as it relates to physical education, Downs and Williams (1994) stated that students with varied orthopedic disabilities can be easily accommodated in general physical education (GPE) contexts because their “limitations” relate to functional barriers,
as opposed to students with other types of disabilities (e.g., severe/profound mental retardation) who are presented with cognitive deficits which often makes it difficult for such students to understand and/or grasp fundamentals that are involved in the class. Given the fact that students with varied orthopedic disabilities could more easily be accommodated in general education classes, subsequent to the introduction of the REI, there was an increase in the number of students with varied orthopedic disabilities who were included into general education classes (Sawyer et al., 1994).

Today, the REI has been expounded upon and has taken on various interpretations by various professionals in education, and has now progressed to the current educational philosophy known as "inclusion." According to the extant inclusion-related literature, inclusion is defined as "an underlying value by which all students with and without disabilities are educated together in supportive settings; learning, playing, and working with students their own age in the same schools and classrooms attended by their brothers, sisters, and neighbors; and regardless of individual needs are provided the necessary and appropriately trained related services and supports, including technical supports as specified in the Individualized Education Plan (IEP) or other educational plans" (AXIS Center for Public Awareness, 1993, p. 12).

Concomitant with these ongoing terminology/philosophical reforms, the area of educating students with disabilities in various educational contexts has been researched. Several research studies (Block, 1995; Block & Zeman, 1996; Downs & Williams, 1994; Heikinaro-Johansson & Sherrill, 1994; Tripp, French, & Sherrill, 1995) have focused on inclusion and how students without disabilities feel about the inclusion of students with
disabilities into GPE classes. To date, only limited research has been reported (Blinde & McCallister, 1998) which addressed the concerns of students with varied orthopedic disabilities as it relates to their perception of inclusion in GPE classes. More specifically, Blinde and McCallister (1998) suggested that the attitudes of students with varied orthopedic disabilities who are included into GPE classes could and should be assessed, because such students present no cognitive deficits relative to their ability to express their attitudes. Moreover, such an attitudinal assessment could potentially assist local education agency (LEA) personnel with their identification of the LRE for students with varied orthopedic disabilities, and at the same time facilitate LEA compliance with public law mandates. In reality, Public Law 105-17 [Individuals with Disabilities Education Act (IDEA), Amendments of 1997] requires school district personnel to educate students with disabilities in the LRE (Federal Register, 1999). Yet, this has been an ongoing challenge for parents of students with disabilities, as well as for LEA personnel because the terms “mainstreaming,” “LRE,” and “inclusion” are still often confusing and even used interchangeably (Sawyer et al., 1994; Sherrill, 1994).

Placement Concerns

Sherrill (1994) stated that both the ability level of students with disabilities and the availability of support personnel must be considered before deciding which option presents the most appropriate least restrictive environment (LRE) for each student. Therefore, all students with disabilities should not automatically be included into general physical education (GPE) classes. However, contrary to such placement decision-making, there are a number of proponents (Beaver, 1993; Blackman, 1992; Block, 1994) who advocate for
the inclusion of all students with disabilities into GPE classes. Yet, most proponents of full inclusion seem concerned primarily with providing students with disabilities with an opportunity to socialize and interact with peers without disabilities, with less focus on developing academic skills such as language/communication skills, and building self-esteem and/or self-image (Stein, 1994).

For the most part, inclusion-related research centers around the attitudes of teachers and students without disabilities. For example, Block (1995) revised and validated the Children's Attitudes Toward Integrated Physical Education (CAIPE-R), an instrument which is designed to assess attitudes of children without disabilities toward the inclusion of peers with disabilities in GPE. Block (1995) reported that children without disabilities displayed positive attitudes toward the inclusion of students with varied orthopedic disabilities in GPE classes. In contrast, others have reported that some students without disabilities are not accepting of students with varied orthopedic disabilities in GPE classes (Blinde & McCallister, 1998; Tripp et al., 1995). In fact, inclusion will sometimes provide students with varied orthopedic disabilities negative feedback and/or the development of negative attitudes toward physical education (Blinde & McCallister, 1998), especially when inclusion is not properly planned, and if it is not a convivial environment (Grosse, 1991; Tripp et al., 1995). Thus, if the placement of students with disabilities into GPE classes is to be fostered, the class environment should be free of competition among groups, free of tension among peers, and more important, contacts should be beneficial for students with disabilities, as well as for students without disabilities (Sherrill, 1998; Tripp et al., 1995; Yuker, 1988).
Lack of Acceptance and Attitude Change

Not only are some students without disabilities unaccepting of the practice of inclusion, but some teachers do not accept such practice either (Heikinaro-Johansson & Vogler, 1996). Brophy and Good (1978) noted that failure among many students with disabilities who are included into general education classes is often related to the teacher's attitude of not wanting to work with such students. Some teachers, when informed that a student with a disability will enter their gymnasium, become anxious, frustrated, and basically do not want to have contact with that individual (Lavay & Depaepe, 1987). Moreover, Block and Etz (1995) stated that some GPE teachers do not feel adequately prepared to handle students with disabilities, regardless of the type and/or severity of the disability. Therefore, even students with disabilities (e.g., students with varied orthopedic disabilities) who may present no cognitive deficits and/or behavioral problems may not be accommodated in GPE classes, simply because of the GPE teachers’ lack of acceptance in attitude towards the inclusion of such students.

Attitude is a major factor relative to the inclusion of students with disabilities (Heikinaro-Johansson & Vogler, 1996; Hodge & Jansma, 1999; Tripp & Sherrill, 1991). Positive attitudes of teachers, students without disabilities, administrators, parents, and students with disabilities are all very important. Thus, it is critical that attitudes that are perceived as negative by any of the aforementioned persons be changed, as a means to foster successful inclusion of students with disabilities, in this case, students with varied orthopedic disabilities.
According to Sherrill (1998), in order to facilitate attitudinal changes, one must begin with the assessment of attitude components and related behaviors; yet, several other factors need to be a part of the inclusion process as well. In particular, one of the most important considerations should involve assessing the attitudes of students with disabilities who are actually included in GPE classes (Blinde & McCallister, 1998; Lieberman & Webb, 1999). It can then be determined if such students with disabilities possess positive or negative attitudes toward their inclusion. Lavay and Depaepe (1987) stated that the student with a disability, who possesses a positive attitude and willingness to participate in physical activity, can overcome many adversities which may arise during the inclusion process. Similarly, Karper and Martinek (1985) believed that the key to success for students with disabilities lies in teachers’ ability to form positive and accurate expectations which are flexible (i.e., expectations that change according to the nature of the task). To the contrary, when teachers’ expectations are negative, inaccurate, and rigid, students with disabilities tend to experience detrimental effects (e.g., low expectations, low skill development, and negative attitudes toward physical education). In fact, Karper and Martinek (1985) stated that students with disabilities may begin to develop low expectations through various teacher behaviors (e.g., continuous negative teacher-to-student feedback, avoidance, or indifference).

Data-based research (Block, 1996; Heikinaro-Johansson & Sherrill, 1994; Lieberman & Webb, 1999; Tripp et al., 1995) clearly indicates that a favorable attitude is an integral part of successful inclusion, and should be assessed prior to the inclusion of students with disabilities, during inclusion practices, and at the end of an academic year.
According to Tripp and Sherrill (1991), attitude is probably considered to be the most distinctive and indispensable concept in contemporary American psychology. Therefore, until the attitudes of physical educators change and become more favorable toward teaching students with disabilities, the odds are low that such students will be successfully included into GPE contexts (Rizzo, 1984). Physical educators should exhibit positive attitudes toward all students in their classrooms and throughout their schools as a means to foster successful inclusion of students with disabilities into GPE classes (Maeda, Murata, & Hodge, 1997/1998). Promoting and facilitating the inclusion of students with disabilities to become an integral part of the entire school system with their peers without disabilities and friends, also promotes the acceptance of students with disabilities, and at the same time changes the attitudes of others in the school context (Boatwright 1993; Schnorr, 1990). The fact is that schools are typically the first public institution to shape and change students’ attitudes, and are therefore crucial for moving students with disabilities into the mainstream (Shapiro, 1993). In addition, physical education is one of the curriculum areas in which students with disabilities are most frequently included (Downs & Williams, 1994; McClenaghan, 1981), particularly students with varied orthopedic disabilities.

Attitude of Consumers

Typically, a team of individuals makes a decision whether or not to include a student with a disability into the GPE class. However, students with disabilities rarely, if ever, have the opportunity to express their views regarding their placement (Blinde & McCallister, 1998). Even though such students’ roles as participants in the individualized
educational program (IEP) process is clearly delineated in federal legislation (i.e., IDEA, 1997- P.L. 105-17) (Federal Register, 1999). Lavay and Depaepe (1987) stated that the attitudes of students with disabilities (i.e., the consumers) toward being included must be considered if successful inclusion is to be fostered. Moreover, Orlansky and Heward (1981) believed that students with disabilities have useful and needed skills to contribute, if they were to be consulted with regard to their attitude about the inclusion process. It is often assumed, without consulting with the student possessing a disability, that he/she has a positive attitude with regard to the inclusion process. However, not all students with disabilities want to be fully included into GPE classes as full-time members. In fact, some students with disabilities prefer to be included into GPE classes part-time, so that they can acquire various subculture skills (Sherrill, 1994). Apparently, subculture skills in GPE classes have relevance as to why some students with disabilities prefer to be included into GPE classes. Therefore, the assessment of their attitudes toward inclusion into GPE classes should not continuously be overlooked. According to Tymitz-Wolf (1984), the student with a disability to be included is often overlooked and is the last to be informed regarding placement into a GPE setting. However, if successful inclusion is to be realized, the attitudes of students with disabilities being included must be considered (Blinde & McCallister, 1998; Lieberman & Webb, 1999). Attitude is an important aspect of inclusion for everyone, not only for teachers and students without disabilities, but most importantly for students with disabilities who are being included, for they are the consumers of education.
Also, the peer relationships that are often times promoted in GPE classes for students with disabilities need attention (Sherrill, 1985; Sherrill, Heikinaro-Johansson, & Slininger, 1994). For instance, attention needs to be focused on the effects of exposure and contact of students with varied orthopedic disabilities on peer relationships within GPE contexts. In an earlier investigation, Voeltz (1980) found that children without disabilities who had previous exposure and contact with peers with disabilities had more favorable attitudes toward their peers with disabilities than children without disabilities who did not have exposure and contact with peers with disabilities. Thus, in addition to students without disabilities benefiting from exposure and contacts with students with disabilities, it should be understood that students with disabilities benefit as well (i.e., reciprocity occurs), because students with disabilities tend to set higher goals for themselves when they have peers without disabilities to model (Shapiro, 1993). Certainly, it could be argued that assessing the attitudes of students with varied orthopedic disabilities toward their educational inclusion is vital. Any such investigation should be based upon theoretical and practical foundations (Tripp & Sherrill, 1991).

Theoretical Frame

The theoretical frame for this study is contact theory (Allport, 1954). This theory has been previously discussed in the adapted physical activity literature by Tripp and Sherrill (1991) and by Tripp et al. (1995). Contact theory postulates that the more individuals with differences are in contact (i.e., interact), the more an attitude change will be in evidence. Although Tripp et al. (1995) used contact theory to examine the attitudes of students in integrated versus segregated physical education settings, to date, no
empirical research has been conducted with regard to "contact theory" in physical
education from the perspective of students with varied orthopedic disabilities who are
included in GPE classes.

Need for the Study

The inclusion of students with disabilities into general physical education (GPE)
classes has been a controversial issue in recent years (Block, 1996). This controversy is
due in part to the fact that there are a number of factors to consider when including
students with varied orthopedic disabilities into GPE classes. According to Tripp and
Sherrill (1991) and Sherrill (1998), one relevant factor is attitude. Data-based research has
supported the contention that attitude, from the perspective of physical education teachers
and students without disabilities, affects the outcome of successful inclusion in GPE
classes (Block, 1995; Down & Williams, 1994; Heikinaro-Johansson & Sherrill, 1994;
Rizzo, 1984; Rizzo & Vispoel, 1991; Voeltz, 1980). In that vein, as a means to expand
upon and understand the conceptual inclusion model, the attitudes of students with
disabilities, specifically students with varied orthopedic disabilities, need to be examined.
However, to our knowledge, a validated instrument to assess the attitudes of students with
varied orthopedic disabilities toward their inclusion into GPE classes is not currently
available.

This research study sought to develop and validate The Inventory, and then to use
the developed instrument to assess the attitudes of students with varied orthopedic
disabilities toward their inclusion into GPE classes. From the findings of this study, a valid
and reliable method of assessing the attitudes of students with varied orthopedic
disabilities was to be developed. In addition, a more in-depth understanding of the attitudes of students with varied orthopedic disabilities who were included into GPE classes was to be obtained. Furthermore, findings were intended to reveal which factors impact attitudes of students with varied orthopedic disabilities relative to their inclusion into GPE classes. Moreover, these findings could be used as an indicator as to whether or not students with varied orthopedic disabilities believed that they were being adequately accommodated in GPE classes.

Purpose of the Study

The purpose of this study is twofold: 1) to develop a valid and reliable instrument entitled: The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education (i.e., The Inventory) to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into general physical education (GPE) classes, and 2) to use the developed instrument to examine the attitudes of students with varied orthopedic disabilities toward their actual inclusion into GPE classes. Subquestions related to this overall purpose focus on determining whether or not orthopedic disability type, grade level, gender, onset of disability (i.e., congenital or acquired), duration of inclusion into GPE classes, and participation or non-participation in regular (extracurricular) physical activity impact the attitudes of students with varied orthopedic disabilities toward peers without disabilities, physical activity offerings, and GPE teachers, relative to inclusion into GPE classes.
Research Questions

This study sought to answer the following research questions:

1. Does The Inventory instrument provide valid and reliable data relative to the attitudes of students with varied orthopedic disabilities toward inclusion into general physical education (GPE) classes?

2. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward their inclusion into GPE classes?

3. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of grade level (i.e., middle school or high school)?

4. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of gender?

5. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of onset of disability (i.e., congenital or acquired)?

6. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of duration of being included into GPE classes?

7. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward peers without disabilities in GPE classes?

8. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward the physical activity offerings within GPE classes?
9. Do students with varied orthopedic disabilities who are included into GPE classes exhibit positive or negative attitudes toward GPE teachers?

10. Is there a difference in the attitudes of students with varied orthopedic disabilities who are included into GPE classes between those who regularly participate in (extracurricular) physical activity and those who do not?

**Definition of Terms**

For the purpose of this study, the following constitutive definitions were stated to clearly reflect the terminology used in the professional literature:

Attitude - "is an organized predisposition to think, feel, perceive, and behave towards a referent or cognitive object. It is an enduring structure of beliefs that predisposes the individual selectively toward attitude referents" (Kerlinger, 1986, p. 458).

Inclusion - "is an underlying value by which all students with and without disabilities are educated together in supportive settings; learning, playing, and working with students their own age in the same schools and classrooms attended by their brothers, sisters, and neighbors; and regardless of individual needs are provided the necessary and appropriately trained related services and supports, including technical supports as specified in the Individualized Education Plan (IEP) or other educational plans" (AXIS Center for Public Awareness, 1993, p. 12).

Orthopedic disability - "An orthopedic impairment which adversely affects a child’s educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g., cerebral
palsy, amputations, and fractures or burns which cause contracture)” (Federal Register, March, 12, 1999, p. 12409).

For the purpose of this study, the following operational definitions were stated to clarify terms that were used throughout the research study.

**Attitude** - Students with varied orthopedic disabilities possessing positive or negative feelings, perceptions, or beliefs regarding peers without disabilities, physical activity offerings, and physical education teachers within general physical education (GPE) classes.

**Inclusion** - Students with varied orthopedic disabilities who participate in general physical education (GPE) classes with students without disabilities.

**Limitations of the Study**

The following were viewed as limitations of this study:

1. Each participant brought his/her own unique physical activity history of experiences into the general physical education class.

2. Each participant’s duration of inclusion into the general physical education class may have affected his/her attitudes about inclusion into the general physical education class.

3. Due to nonrandomness, participants may not have been representative of the larger population of students with varied orthopedic disabilities.

**Delimitations of the Study**

The following was a delimitation of this research study:

1. Only participants with orthopedic disabilities who were included into general physical education, in grades 7-12, participated in the principal research study.
CHAPTER 2

REVIEW OF LITERATURE

The purpose of this chapter is to provide an overview of inclusion, attitude and contact theory literature as it relates to special education, general physical education (GPE), and adapted physical education (APE). The inclusion movement in United States schools will be addressed initially within this chapter, in addition to the following areas: (1) Inclusion in general physical education; (2) Reauthorization of IDEA and its impact on inclusion; (3) Rationale for attitudinal assessment; (4) Contact theory and its application in physical activity contexts; (5) Contact and attitude theory formation in general physical education classes; (6) Attractiveness and attitudes; (7) Perceived status, hindrance and peer interactions; (8) Attitudinal change and peer relationships; and (9) Contact effects on teachers. The chapter concludes with a summary of critical content.

Inclusion Movement in United States Schools

Inclusion is now the most widely used concept across various local education agencies (LEAs) in the United States, and it continues to evolve (Putnam, Spiegel, & Bruininks, 1995). However, the practice of inclusion and/or the usage of such terminology has not always been a part of the United States educational system, especially as it relates to educating students with various types of disabilities. According to Wang and Baker
(1986), the United States' educational system has traditionally consisted of a “dual-system” (i.e., regular education and special education). Within the context of the regular or general education system, a large percentage of students without disabilities were educated. Whereas, students with disabilities were educated in segregated special education programs.

Although this dual educational system as used in most U.S. schools was supposed to provide equal success for each respective group of students (i.e., students with disabilities and students without disabilities), researchers (Wang & Baker, 1986; Wang, Reynolds, & Walberg, 1987) have found that this was not typically the case for students with disabilities. In fact, findings from Wang et al. (1987) suggest that special education programs were inherently weaker than general education programs, and basically, special education programs were just a “place to go” for students with disabilities. According to Wang et al. (1987), special education programs were weaker due to discriminatory issues relative to economics, race, isolation, and categorization invalidity. In a similar vein, Block and Vogler (1994) identified specific problems that were inherent within the dual education system that made the system ineffective for students with disabilities. These problems included: (1) isolation; (2) categorical labeling; (3) negative attitudes toward children with disabilities; and (4) stereotyping.

As a means to facilitate the inclusion of students with mild forms of disabilities (i.e., learning disabilities, mild mental retardation) into general education classes, in 1986, Madeline Will (then Assistant Secretary for the U.S. Office of Special Education and Rehabilitative Services) introduced a paper entitled: “Regular education initiative” (Will, 1986).
Will's paper essentially addressed the need for shared responsibility and/or partnership between the two program areas (i.e., general education and special education) (Wang & Walberg, 1988). The intention of Will's regular education initiative (REI) was not to include all students with disabilities into general education classes. However, some full inclusion proponents expounded upon the REI to promote the inclusion of all students with disabilities (regardless of the nature and/or severity of the disability) into general education classes (Brown, et al., 1989; Stainback & Stainback, 1990; Thompson, et al., 1994). Though such full inclusion proponents' ultimate goal involved the inclusion of all students with disabilities into general education classes, some full inclusionists had differences in opinions relative to the structure of special education in U.S. schools.

According to Fuchs and Fuchs (1995), within the full inclusion group of proponents exist two sub-groups. Fuchs and Fuchs (1995) described the first sub-group of full inclusionists (Lipsky & Gartner, 1992; Stainback & Stainback, 1990; Stainback, Stainback, Courtnage, & Jaben, 1985) as those who believe that the entire special education structure should become extinct (i.e., no more special education placement, no more special education students, and no more special educators). However, a second sub-group of full inclusionists (Giangreco et al., 1993; Vergason & Anderegg, 1989; Walker & Bullis, 1991) believe that special educators should remain in U.S. schools, providing their services to all students (not solely to students with disabilities) in a general education context. Thus, they disagree with the elimination of special educators and/or the existing special education structure as a whole. In support of the latter sub-group of full inclusionists, Fuchs and Fuchs (1995) stated that eliminating special education placements
and adopting a full inclusion philosophy will not serve as an appropriate educational alternative for a number of students with disabilities, because it will not represent the least restrictive environment (LRE) for them. In addition to the concern relative to educational placement of students with disabilities in the LRE, trust has also become an issue of concern for advocates of dual education systems. According to Walker and Bullis (1991), general education teachers cannot be trusted to address and meet the needs of all students with disabilities in an inclusive setting.

The issues relative to dual educational systems and placement of students with disabilities are just two of the many controversial issues that exist in special education in U.S. schools (Putnam et al., 1995). In particular, the issue of future trends in special education with regard to educating students with disabilities has become an issue of concern as well. To address the latter concern, Putnam et al. (1995) used a Delphi technique involving 37 educators to examine and predict the educational trend of students with disabilities for the 1990s and beyond. The 37 educators' predictions of special education included: (1) the movement towards increasing inclusion will occur; (2) the belief will prevail that people with disabilities have a right to participate in inclusive environments; (3) students with mild disabilities will be educated in general classrooms; (4) teachers will increase their use of instructional approaches such as cooperative learning and instructional technology; and (5) researchers will focus on matching instructional needs with learners' characteristics. Putnam et al. (1995) reported that the inclusion move will continue to progress, along with the belief that people with disabilities have rights to full participation in inclusive settings. Thus, placement of students with disabilities in
general education classes in U.S. schools will no longer be an issue of debate, because the general education class will be their primary placement.

To date, the placement of students with disabilities into general education classes in U.S. schools reveals a consistent increase over time for students with various types of disabilities, including students with varied orthopedic disabilities (Sawyer et al., 1994). In an examination of the national data trends of students with disabilities in inclusive settings, Sawyer et al. (1994) found that the inclusion (though substantial variations exist across school districts) of students with disabilities was occurring across various local educational agencies (LEAs) throughout the U.S. In addition, from a legislative compliance standpoint, Sawyer et al. (1994) found that on a national level, the LRE mandate was being actively pursued by a number of LEAs. According to Putnam et al. (1995), the positive trend of LRE mandate implementation by LEAs should not be surprising because a large number of schools and school districts currently educate nearly all students with disabilities in general education classes, which is considered the LRE.

**Inclusion in General Physical Education**

With regard to the inclusion of students with disabilities into general physical education (GPE) classes, Block (1994) adopted and extrapolated the full inclusion philosophy from special education full inclusion advocates (Giangreco et al., 1993; York, Giangreco, Vandercook, & MacDonald, 1992). Block (1994) suggested that all children with disabilities should and could be included in GPE classes, with the use of “appropriate” supports. Previously, Block and Krebs (1992) had suggested that support personnel should involve trained peers and volunteers. Further, as a means to support their
position with regard to providing appropriate supports with the use of trained peers and volunteers for students with disabilities in GPE classes, Block and Krebs (1992) developed a continuum of support model as a replacement for the mandated least restrictive environment (LRE) model. Their continuum of support model consists of five levels (i.e., level one - no support needed; level two - APE consultation; level three - APE direct service in RPE 1x/week; level four - part-time APE and part-time RPE; and level five - reverse mainstreaming in special school). In addition to such personnel support, Block and Krebs (1992) suggested that this continuum of support should consist of equipment modifications (when needed) and/or assistive technologies to successfully facilitate the inclusion of students with disabilities into GPE classes.

Block (1994) contended that inclusion should occur because of the four following rationales: (1) (LRE and the principle of portability) suggests that services that are provided to students with disabilities could be transferred from segregated to integrated settings; (2) (All things being equal, inclusion is better than segregation) connotes that the services and opportunities that are provided to students with disabilities in inclusive settings cannot be replicated in segregated settings; (3) (Inclusive programs can actually promote better instruction and time on task) suggests that some inclusive physical education programs may promote more opportunities for students with disabilities to respond, receive more feedback, and have access to more direct instruction; and (4) (Good physical education is good adapted physical education) suggests that good, quality physical education programs always meet and address the needs of all students.
In support of Block's views relative to the full inclusion of all students with disabilities, researchers (Boatwright, 1993; Brown et al., 1989) believe that including students with disabilities into GPE will also facilitate the social acceptance of students with disabilities by others who are a part of the school setting. However, simply including students with disabilities into GPE will not necessarily foster successful inclusion. Thus, the attitudes of physical education teachers and peers without disabilities toward the inclusion of students with disabilities must be assessed as well (Sherrill, 1998). As important, students with disabilities' "voices" need to be taken into consideration as it relates to their inclusion in GPE classes (Webb, 1997), particularly students with varied orthopedic disabilities (Blinde & McCallister, 1998). Such a consideration is important because students with varied orthopedic disabilities can often times provide suggestions to their physical education teachers relative to how they can best participate in various activities. Thus, taking into consideration the suggestions that are provided by students with varied orthopedic disabilities can often time save physical educators a great deal of time relative to making various types of adaptations and/or modifications (Blinde & McCallister, 1998). At the same time, students with varied orthopedic disabilities will have an opportunity to share their views about physical education.

In a qualitative study involving 20 students with varied orthopedic disabilities (15 congenital, 5 acquired) who were included in GPE classes, Blinde and McCallister (1998) found such students often experienced limited opportunities to participate in class activities and they held negative emotions relative to their physical education experiences. Blinde and McCallister (1998) reported that GPE teachers who taught students with
varied orthopedic disabilities did not effectively monitor their GPE classes, nor did they take into consideration the views of students with varied orthopedic disabilities. Providing students with varied orthopedic disabilities an opportunity to share their views is imperative. According to Mactavish and Searle (1992), students with varied orthopedic disabilities more so than any other disability label (e.g., severe/profound mentally retarded, deaf/blind) often experience a sense of control when they are given the opportunity to share their views and/or select their own activities for which they could best participate. This is due in part because such students are cognitively aware of their skills and abilities.

With regard to physical education teachers and integrating students with varied orthopedic disabilities in GPE classes, Aloia et al. (1980) found that teachers held lower stereotypic perceptions toward students with varied orthopedic disabilities than toward students who were not labeled as having a disability. In similar studies pertaining to physical educators’ attitudes toward teaching students with varied orthopedic disabilities in GPE classes, researchers have found that teachers held negative attitudes toward teaching such students (Rizzo, 1984; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988). However, Schmidt-Gotz, Doll-Tepper, and Lienert (1994) found that teachers preferred teaching students with varied orthopedic disabilities over those with learning disabilities.

Reauthorization of IDEA and its Impact on Inclusion

To address the debate and reduce ambiguity across local education agencies (LEAs) relative to educating students with disabilities, Public Law (P.L.) 101-476 [Individuals with Disabilities Education Act (IDEA), 1990] has been reauthorized by P.L. 105-17 [Individuals with Disabilities Education Act Amendments of 1997]. This
reauthorization addresses the area of support training for assistants and aides to facilitate the learning of students with disabilities in general physical education (GPE) classes. In addition, the area of discipline is addressed as it relates to students with disabilities. To monitor discipline-related behaviors (i.e., suspension and/or expulsion), LEA personnel are now required to collect data on suspension and expulsion rates of such students, along with the behavior intervention that has taken place with regard to students with disabilities' behaviors. Moreover, these data must be included in such students' records, in the event that the student with a disability transfers schools.

With the implementation of P.L.105-17, the topic of inclusion therefore is alluded to, with specific emphasis placed on maintaining students with disabilities in general education classes, including physical education. From an inclusion perspective, students with disabilities are now maintained in most general education classes, alongside their peers without disabilities, even for non-educational purposes (e.g., social benefits). This addition to the law places a huge stress on inclusion, particularly as it relates to documentation on the individualized educational program (IEP), and the use of general education curriculums. Now, not only must students with disabilities' present level of performance be addressed on the IEP, but a statement indicating how students' disabilities affect their involvement in the general education curriculum must also be included. Moreover, information on the IEP must be documented relative to such students' progress in the general education curriculum, and students' evaluation with regard to meeting general education curricular goals. Thus, inclusion of students with disabilities is a reality, and valid means to assess their attitudes relative to their inclusion is an important basis for
helping teachers improve their instruction and accountability.

**Rationale for Attitudinal Assessment**

A general consensus among attitudinal theorists (Ajzen & Fishbein, 1980; Allport, 1935; Amir, 1969; Rees, 1985; Yuker, 1988) is that contact between individuals with differences is vital to attitude formation. Therefore, an understanding of students with varied orthopedic disabilities in contact with others in general physical education (GPE) classes is vital as well.

Attitude is an integral part of successful inclusion, whether it involves the teachers, students without disabilities, and/or the students with disabilities. Whenever possible, this factor should be assessed prior to inclusion, during inclusion, and subsequent to inclusion. Tripp and Sherrill (1991) stated that attitude is probably the most distinctive and indispensable concept in contemporary American psychology. Thus, knowing that attitudes play such a pivotal role in our society, why have the attitudes of students with varied orthopedic disabilities toward their placement into GPE classes not been empirically researched in the conceptual inclusion model?

Researchers have found that attitudes among teachers vary, based on the type of disability, as well as the grade level of students with disabilities (Melograno & Loovis, 1991; Rizzo, 1984; Rizzo & Vispoel, 1991). As one example, Rizzo (1984) found that physical educators held more favorable attitudes toward teaching students with learning disabilities than those with varied orthopedic disabilities. In addition, he found that as grade level advanced from primary (K-3) to intermediate (4-6) to upper (7-8) grades, teachers' attitudes became progressively less favorable toward students with disabilities.
One could speculate that, if teachers harbor these less favorable attitudes toward students with varied orthopedic disabilities, perhaps they could be noticed by both students with and without disabilities, in this case, students with varied orthopedic disabilities. Moreover, teachers' attitudes toward particular students with disabilities could have an impact on students’ overall learning (Krauft, Rubin, Cook, & Bozarth, 1976).

The premise for assessing the attitude of students with varied orthopedic disabilities is based on the belief that, if we know and understand the attitudes of students with varied orthopedic disabilities regarding their inclusion placement, perhaps we can structure their individualized educational programs (IEPs) more appropriately to address those concerns. Lavay and Depaepe (1987) offered suggestions for observing and assessing the attitude of students with disabilities. These includes observing how the child reacts and performs in such settings as recess (e.g., does the child play with others or engage in only isolated play). These suggestions are an adequate means of assessing, because they provide an informal qualitative assessment of the child; however, they are very subjective in nature. Sherrill (1998) offered similar suggestions, but hers related specifically to creating positive attitudes. These attitudes involve creating the following: (1) equal-status relationships, (2) a social and instructional climate that requires frequent contacts, (3) cooperative rather than competitive or individual activities, (4) contacts that are pleasant and rewarding, (5) modeling of positive attitudes by teachers and significant others, and (6) scientifically planned and applied persuasion. Although of valid consideration, what is missing from these suggestions is regard to the attitudes of students with disabilities.
Until the attitudes of students with varied orthopedic disabilities included into GPE classes are considered, physical educators can only speculate as to why some students are and some students are not successfully included. According to Sherrill (1998), attitude change starts with an analysis of attitude components and related behaviors.

**Contact Theory and its Application in Physical Activity Contexts**

Allport (1954) was the first sociologist to examine the effects of contact theory on human behaviors, specifically as it relates to interactions between various ethnic groups. According to Allport (1954), contact theory postulates that contact between individuals who are different (e.g., ethnic groups), tends to produce an attitudinal change (either positive or negative) as a result of such contact. However, Allport (1954) does not specify the direction (i.e., positive or negative) of the attitudinal change between the individuals in contact, but he does emphasize the importance of such contact. As a means to delineate the attitudinal directional change, Amir (1969) noted that the direction of the attitudinal change is contingent upon the conditions under which the contact takes place. Thus, Amir (1969) suggested the following must be present for the establishment of positive attitudinal outcomes: (1) equal-status contact; (2) social environment that promotes/encourages contact; (3) contact that is intimate as opposed to casual; (4) contact that is pleasant and rewarding to both parties involved; and (5) contact contexts that involve common (group) goals that are higher in ranking than individual goals. Contrary to that of positive attitudinal development, Amir (1969) stated that negative attitudes tend to develop when: (1) contact produces/creates competition between groups; (2) contact is tension laden; (3) group members as a whole are frustrated; and (4) groups
and/or group members have different moral and/or ethnic standards which are objectionable to each other.

Thus, when including (i.e., facilitating interactions) students with disabilities into general physical education (GPE) classes, the nature of contacts between students with and without disabilities must be taken into consideration (Tripp et al., 1995). If the nature of contact between students with and without disabilities is not taken into consideration by physical educators, negative attitudes are inevitable. In that vein, it is the nature of the contact in GPE classes that is of paramount importance, because it presents the greatest barrier to the development of positive interactions and positive attitudes (Rees, 1985). Clearly, empirical research is needed to better understand the effects of contact between students with varied orthopedic disabilities and their peers without disabilities in inclusive GPE settings.

Contact between students with and without disabilities in inclusive physical activity settings have been examined quite extensively (Beuter, 1984; Block & Zeman, 1996; Karper & Martinek, 1985; Rarick & Bueter, 1985; Stewart, 1988; Tripp et al., 1995), but not from the perspective of students with varied orthopedic disabilities. Also, some researchers (Kisabeth & Richardson, 1985; Stewart, 1988) have examined the effects of inclusion on students with disabilities in various physical education/activity contexts from various perspectives. Specifically, Kisabeth and Richardson (1985) examined the effects of equal-status relationship and close personal contact of a person with an orthopedic disability on the attitudes of students without disabilities. However, their findings indicated that no statistically significant difference was evident between the attitudes. In a similar
study. Stewart (1988) examined the effects of contact with students who had varied orthopedic disabling conditions on the attitudes of students without disabilities within the context of a university weight training class. As a result, Stewart’s (1988) findings revealed that students with varied orthopedic disabilities had a positive significant impact on the attitudes of students without disabilities.

With regard to early contacts with persons with disabilities, Hoenk and Mobily (1987) examined the attitude of preschoolers without disabilities relative to their previous exposure to persons with varied orthopedic disabilities toward peers with disabilities in an integrated play setting. Their research findings revealed that certain benefits are obtained from contacts in an inclusive physical education program setting. These benefits include: (1) improved motor performance of students with disabilities, (2) improved social interaction, (3) positive attitudinal changes in students without disabilities, and (4) improved self-concept in students with disabilities.

In a more recent research study relative to the use of contact theory in physical education, Block and Zeman (1996) examined the effects of contact (during a basketball instructional unit) on including students with severe disabilities into GPE classes on the attitude and skill development of students without disabilities. Block and Zeman (1996) hypothesized that students without disabilities who had contact with students with severe disabilities would develop a favorable attitude towards inclusion of such students into their GPE class. From their findings, Block and Zeman (1996) concluded that inclusion of students with severe disabilities into a basketball instructional unit did not negatively affect the attitudes of students without disabilities.
Contact and Attitude Theory Formation in General Physical Education Classes

Most attitude theorists (Ajzen & Fishbein, 1980; Allport, 1935; Amir, 1969; Rees, 1985; Yuker, 1988) agree that contact is an important dimension in attitude formation. In addition, theories have been proposed as a means to explain how attitudes are formed by various individuals (Ajzen & Fishbein, 1980; Horne, 1985; Jones, 1984). According to Zimbardo, Ebbesen, and Maslach (1977), theories play a critical role involving any systematic approach as a means to understand complex phenomena such as attitude, because: (1) they can generate predictions about complex functional relationships between variables; (2) they integrate many empirical observations which, on the surface appear to be dissimilar; (3) they separate relevant from irrelevant variables; (4) they allow for the derivation of nonobvious predictions; and, (5) they explain why variables function as they do, often by postulating hypothetical process.

Moreover, Tripp et al. (1995) pointed out that the use of attitude theories in application pertaining to students with disabilities is complicated in nature. This complication evolves because of the multidimensionality that is often involved in the measurement of attitudes, in addition to the conditions in which contact takes place. Amir (1969) stated that contact under desirable and “favorable” conditions facilitates the development of positive attitudes, while contact under other conditions that are not perceived as “favorable” leads to the development of negative attitudes. Thus, if contact relationships between students with varied orthopedic disabilities and students without disabilities are perceived as equal-status, then favorable attitudes should be developed.
Sherrill (1998) identified equal-status relationships as those relationships in which students with disabilities were of approximately the same chronological age and/or equal in social, educational, or vocational (i.e., work responsibility) status. In contrast, Donaldson (1980) described non-equal status relationships as those relationships in which students with disabilities were significantly older or younger in age than students without disabilities or, although of equal age, were in a perceived inferior position of receiving help or assistance. Such a perceived position by students with disabilities (e.g., students with varied orthopedic disabilities) ultimately impacts their self-identity relative to others in the class (Blinde & McCallister, 1998).

According to Williams (1994), students with varied orthopedic disabilities are constantly constructing their own unique self-identity as they interact with others within their GPE contexts. Thus, it is imperative for students with varied orthopedic disabilities to perceive their interactions (i.e., with peers without disabilities, with physical activities, and with physical education teachers) within GPE classes to be equal-status in nature and noncompetitive. However, equal-status relationships are not easily established because, as opposed to adhering to the philosophy of inclusion, some physical educators facilitate and/or promote competition within GPE classes, which essentially destroys the quality of education for all students. In that light, the social climate for which inclusion is conceptually based is reduced to the extent that the precedence of competition replaces teachers' commitment of providing quality education for all students, regardless as to how students move and/or look.
Attractiveness and Attitudes

As it has been stated, the effects of contact on attitudes of students with disabilities is very complex in nature (Tripp et al., 1995), since there are a number of variables that affect attitudes. For instance, one variable that enhances and/or deters contact between individuals with disabilities and individuals without disabilities is the perceived attractiveness of the person with a disability by others (e.g., peers without disabilities, teachers) (Yuker, 1988). Thus, it is important to note that students with disabilities are perceived as attractive by others when they appear competent about the subject matter, are able to communicate clearly, and are athletically inclined (Yuker, 1988). MacMillian and Morris (1980) found that students with disabilities who demonstrated competence in their subject matter tended to be liked and perceived as more attractive by their peers without disabilities and teachers, more so than students with disabilities who did not demonstrate competency in their subject matter.

The way in which students with varied orthopedic disabilities look physically (i.e., attractive or unattractive) when they are included into GPE classes affects their attitudes, the attitudes of peers without disabilities, and the attitudes of teachers (Yuker, 1988). Murphy (1990) suggested that regardless if students with varied orthopedic disabilities are perceived as attractive or unattractive, inevitably, their presence affects the attitudes of relevant parties (i.e., peers without disabilities, teachers) involved, because they often serve as visible reminders to relevant others that they themselves are susceptible to a disability.
Perceived Status, Hindrance and Peer Interactions

The way in which individuals without disabilities (i.e., peers) perceive their status relative to the status of individuals with disabilities has a strong influence on the outcome of the interactions between both individuals with disabilities, and peers without disabilities (Amir, 1969). Therefore, if and when students with disabilities perceive themselves as having a status equal to or superior to the status of students they are interacting with, positive attitudes tend to be developed (Sherrill, 1985; Yuker, 1988). In contrast, when students with disabilities perceive their status as inferior (i.e., receiving help) to their peers without disabilities, negative attitudinal beliefs tend to be developed. More often, such negative attitudinal beliefs that tend to be developed by students with disabilities eventually become a part of their attitudes.

According to Yuker (1988), negative attitudinal beliefs are a major hindrance to positive interactions between individuals with disabilities and individuals without disabilities. Therefore, if negative attitudes are perceived by students with varied orthopedic disabilities who are included into GPE classes, then inevitably, their interaction with peers without disabilities will be hindered in some respect. However, some of the hindrance experienced by students with disabilities can be mediated, if peers without disabilities perceive students with disabilities to be more alike them than different. With peers without disabilities perceiving peers with disabilities to be more alike them than different, modifications made to various games/rules could then be implemented to facilitate peer interactions. Thus, peers without disabilities need to be willing to accept and respect various modifications in the given context. Such a perception adopted by peers
without disabilities will help to establish and create positive contacts and positive attitudinal changes with individuals who have disabling conditions (Yuker, 1988).

**Attitudinal Change and Peer Relationships**

Although there are a number of variables of relevance that need to be taken into consideration to facilitate attitude change (Tripp & Sherrill, 1991), ultimately, the attitudinal direction (i.e., positive or negative) change of students with disabilities depends on the contextual conditions through which contact has taken place (Yuker, 1988). Conditions perceived as more favorable tend to produce positive attitude shifts. To the contrary, unfavorable conditions tend to produce negative attitude shifts and unequal-status relationships, as opposed to warranted equal-status relationship. In an earlier investigation of peer relationships, Dembo, Leviton and Wright (1975) revealed that equal-status relationships were critical to the attitudinal change between individuals with disabilities and individuals without disabilities. From their findings, Dembo, et al. (1975) suggested that due to establishment of such peer relationships (i.e., equal-status), individuals with disabilities were more willing to accept assistance when they perceived a need for assistance, and when the assistance that was provided by their peers without disabilities did not create a status differential that placed them in an inferior status position. Thus, if the development of positive attitudinal changes and positive peer relationship interactions among those who interact in GPE classes is a realistic goal, then the conditions of interactions (i.e., between peers) should be positive rather than negative.

The variables that affect attitudes are multifaceted in nature (Block, 1996). In particular, such variables include characteristics of the interaction itself (i.e., cooperation,
reward value, personal closeness) and characteristics of the activity setting, including the established norms that operate within the setting. Thus, the type of contact that occurs, specifically among peers without disabilities, will influence the attitudes of persons with disabilities (Yuker, 1988). Inextricably linked to the type of contact, are the severity levels and types of disabilities. Students who possess mild types of disabilities are perceived by their peers without disabilities as more competent than students who possess severe types of disabilities. Also, students with varied orthopedic disabilities are more accepted by their peers without disabilities than students with any other disability type (Gottlieb & Gottlieb, 1977; Schmidt-Gotz, Doll-Tepper, & Lienert, 1994; Tripp, et al., 1995), especially when cooperative interactions are planned and structured. According to Amir (1969), cooperative interaction tends to produce positive attitudes and positive behaviors among peer groups. Yet, of critical importance, the attitudes and behaviors of students with disabilities must be positive as well, because positive behavior tends to elicit positive behaviors from one’s peers (Strain & Shores, 1977).

**Contact Effects on Teachers**

Contact between students with disabilities and teachers varies across content areas and is difficult to contextualize. According to Yuker (1988), teaching is a complex interaction with many confounding variables, which at times are beyond the control of teachers. However, one variable that is controlled by teachers that impacts the attitudes of students with disabilities is the structure of the class and the norms established by the teacher. Class norms established by teachers (either overtly or covertly) place emphasis or lack of emphasis on students with disabilities and their ability to participate in certain
activities (Yuker, 1988). The way in which activities are structured by teachers also affects class norms and the attitudes of students with disabilities. Therefore, activities structured by teachers should be inclusive among students with disabilities and students without disabilities, and segregated activities should be avoided (Block, 1994). Similarly, Yuker (1988) stated that: "Segregation, whether in classrooms, schools, school buses, or similar situations, tends to emphasize the differences between persons with and without disabilities and thus has negative effects" (p. 273).

Each class that a physical educator teaches has a culture that is contextual and is unique to the students who interact within that context. Therefore, students learn to value certain competencies exhibited by other students, certain skill levels of other students, and the communication systems that are developed within the class. According to Yuker (1988), in order for contact to result in positive attitudes for students with disabilities, such students should be: (1) competent in the areas that are valued by others involved in the interaction; (2) socially skillful and able to communicate successfully; and (3) accepting of his/her disability and willing to discuss the disability. If students with disabilities do not possess the aforementioned skills, then physical education teachers should structure their activities to promote positive interactions among all students. As a means to foster the development of positive attitudes, the activity interactions planned should include the following: (1) cooperation and reciprocity; (2) be rewarding to both students with and without disabilities, (3) result in students getting to know each other as individuals, and (4) persist over time (Sherrill, 1994; Yuker, 1988).
Summary

The trend of inclusion and the professional jargon relative to the educational philosophy of inclusion (i.e., including all students with disabilities into general education classes) continues to change among local education agencies (LEAs) across the United States, along with its interpretation by various LEAs (Block, 1996). In addition, the dual education system that has traditionally existed, and that is currently practiced today, has been challenged and/or questioned by researchers (Wang & Baker, 1986; Wang et al., 1987). Moreover, special education programs in U.S. schools have been found to be inherently weaker than general education programs. The issues pertaining to economics, race, isolation, categorization invalidity, negative attitudes toward children with disabilities, and stereotyping serve as the basis for the dual education system being perceived as weak (Block & Vogler, 1994; Wang et al., 1987).

With the proposal of the regular education initiative (REI) (Will, 1986) as a means to ameliorate the inclusion process for students with mild disabilities, full inclusion proponents (Brown, et al., 1989; Stainback & Stainback, 1990; Thompson, et al., 1994) extrapolated beyond the concept of including students with mild disabilities into general education classes, to that of including all students with disabilities (regardless of the nature and/or severity of the disability). Although there was a consensus amongst full inclusion proponents that general education classes were the place to be for all students with disabilities, full inclusion advocates still shared differences with regard to the special education structure (i.e., special educators, special education classes, and special education students). Some full inclusion advocates wanted to “do away” with the entire
special education system, and others wanted to maintain the use of special educators in a
different capacity (Fuchs & Fuchs, 1995).

Inclusion of all students with disabilities will not serve as a “cure-all” relative to
the many issues plaguing educating students with disabilities in U.S. schools because,
beyond the issue of dual education and placement of students with disabilities, other
pertinent issues are in question as well. In particular, such issues pertain to: (1) increased
inclusion; (2) beliefs about individuals with disabilities; (3) general classroom placements;
(4) teachers’ approaches; and (5) research focus (Putnam et al., 1995).

With the increased inclusion of students with disabilities (in this case students with
varied orthopedic disabilities) across general education classes, the need to assess their
attitudes toward their inclusion into general education classes (e.g., general physical
education) is critical as a means to better understand the “cultures” that exist within some
U.S. schools. While the trend of full-inclusion continues to progress in a positive direction
across U.S. schools, physical education has been one curriculum area in particular that has
experienced a rapid increase in the number of students with disabilities included (Downs &
Williams, 1994; McClenaghan, 1981).

The educational philosophy of full inclusion of students with disabilities in GPE
classes has been extrapolated from the special education full inclusion literature base. In
fact, some full-inclusion proponents in physical education (Block, 1994; Block & Vogler,
1994) provided empirical justification and conceptual inclusion models to support their
extrapolation of the full inclusion philosophy from special education. However, beyond
support systems, support models (Block & Krebs, 1992), and philosophical rationales for
including students with disabilities into GPE classes (Block, 1994), empirical evidence obtained from students with disabilities, such as students with varied orthopedic disabilities, will provide a much "richer" understanding of inclusion from the perspective of the consumers (Blinde & McCallister, 1998). Obtaining such information from students with varied orthopedic disabilities will allow such students to have a "voice" in their educational placement (Blinde & McCallister, 1998; Webb, 1997), and at the same time will attribute to effective pedagogical practice for physical educators.

While public laws cannot mandate attitudinal changes within GPE contexts, administrators and GPE teachers need to go beyond a perfunctory placement of students with disabilities into GPE classes in an attempt to promulgate that they have adopted an inclusion model. Thus, simply placing (i.e., dumping) students with disabilities into GPE classes does not mean that positive relationships and/or attitudes between students with disabilities, their peers without disabilities, and their teachers will develop automatically, nor does it indicate that effective inclusion practice will take place (Block, 1994). As identified by Sherrill (1991), attitude must be assessed, including the attitudes of students with varied orthopedic disabilities (Downs & Williams, 1994; Sawyer et al., 1994).

Further, with the reauthorization of IDEA (i.e., P.L. 105-17), inclusion of students with disabilities has become a major issue of concern. Thus, assessing the attitudes of students with disabilities toward their inclusion has major implications relative to helping physical educators improve their instruction.

Currently, the extant inclusion literature base addresses the attitudes of teachers, parents, administrators, and students without disabilities, but not those of students with
varied orthopedic disabilities who are included into GPE classes. As a means to understand how students with varied orthopedic disabilities perceive their interaction (i.e., contact) with peers without disabilities, physical activity offerings and physical education teachers within GPE classes, the attitudes of students with varied orthopedic disabilities need to be assessed (Webb, 1997). In that vein, it has been documented that contact between individuals with differences is of critical importance to understanding attitude formation (Ajzen & Fishbein, 1980; Allport, 1935; Amir, 1969; Rees, 1985; Yuker, 1988). However, the attitudes of students with varied orthopedic disabilities in contact with peers without disabilities, physical activity, and physical education teachers in GPE contexts have yet to be empirically examined, irrespective of the fact that such students are the most commonly included group of students with disabilities in GPE classes (Downs & Williams, 1994; McClenaghan, 1981).

With the continued influx of students with disabilities being included into GPE classes (Sherrill, 1994), specifically students with varied orthopedic disabilities, the need to understand their attitudes toward being included is critical. Such information obtained from students with varied orthopedic disabilities can provide relevant information to the development of their individualized education programs (IEPs). In addition, examining the attitudes of students with varied orthopedic disabilities in contact with peers without disabilities, physical activity offerings, and physical education teachers in GPE contexts should impact upon the extant conceptual inclusion model (i.e., attitudes of teachers, students without disabilities, and administrators).
Data-based research has documented the contention that contact between individuals with disabilities and individuals without disabilities does change the attitudes of individuals interacting in a physical activity context (Beuter, 1984; Block & Zeman, 1996; Karper & Martinek, 1985; Rarick & Bueter, 1985; Stewart, 1988; Tripp, et al., 1995). However, simply having students with and without disabilities in contact with each other in a physical activity context, such as physical education will not automatically facilitate positive attitudinal outcomes for either party (Sherrill, 1994).

Thus, understanding contact theory (Allport, 1954) and the complexity of attitudes is warranted relative to fully understanding how contact between students with varied orthopedic disabilities and students without disabilities change attitudes in GPE classes. To this end, though attitudes are complicated in nature (Block, 1996; Tripp, et al., 1995), positive and negative attitude formation by students with varied orthopedic disabilities who are included in GPE classes can be empirically examined. One indicator as to whether positive or negative attitudes will be developed by students with varied orthopedic disabilities who are included in GPE classes is contingent on such students’ perception of the relationship (i.e., equal-status or unequal-status).

In addition to the perceived status by students with disabilities, how they look physically (i.e., attractive or unattractive), and their attitudes toward being included into the GPE class will also have an impact on their contact with others. Students with disabilities who communicate well with others and who are athletically inclined tend to be more accepted by their peers without disabilities and teachers (Yuker, 1988). Such acceptance by peers without disabilities and teachers inevitably creates positive contacts
and equal-status relationships between individuals with disabilities and individuals without disabilities (Sherrill, 1985; Sherrill et al., 1994; Yuker, 1988).

The perception of equal-status relationships between individuals with disabilities and individuals without disabilities also affects the interaction outcomes within the class (Amir, 1969). Thus, physical educators should structure interactions between students with disabilities and students without disabilities so that positive interactions can be facilitated. According to Block (1996), the structure of positive interactions should promote cooperation, have a reward value, and involve personal closeness. In addition, segregated activities between students with disabilities and students without disabilities should be avoided (Block, 1994; Yuker, 1988). Given the preceding advocacy to assess attitudes as it relates to inclusion, this research sought to examine the attitudes of students with varied orthopedic disabilities who were included in GPE classes, as it relates to their contact with peers without disabilities, physical activity offerings, and physical education teachers.
CHAPTER 3
PROCEDURES

This chapter highlights the methods and procedures that were used: (1) to investigate an attitude instrument's development and validation, and (2) to examine the attitudes of students with varied orthopedic disabilities toward their actual inclusion into general physical education (GPE) classes. More specifically, this chapter includes information as it relates to: (1) Permission and consent, (2) Development and validation of The Inventory, (3) Field testing of The Inventory, (4) Instrumentation, (5) Research sites, (6) Sample selection, (7) Research design, (8) Data collection, and (9) Data analysis.

Permission and Consent

Initially, approval was obtained for use of the research study's specific participants from The Ohio State University Behavioral and Social Sciences Human Subject Review Committee (see Appendix A). This Committee serves as Ohio State's safeguard for the protection of the rights and welfare of participants involved in research studies. Subsequently, written consent from participating research sites was obtained from state level representatives (i.e., state department of education administrators and state special education directors) across participating school districts (see Appendix B). In addition,
consent for participation in the research study was obtained from building principals, general physical education (GPE) teachers, and parent(s) or guardian(s) of students with varied orthopedic disabilities, with the use of standard consent forms (see Appendix C).

State department of education administrators across the states of Maryland, Ohio, Wisconsin, and Virginia were contacted via telephone and in writing by the investigator, requesting census data pertaining to the number of students with varied orthopedic disabilities who were serviced across public school districts in their respective states. As a result, each of the aforementioned state departments of education administrators provided the investigator with a frame listing which highlighted the total number of students with varied orthopedic disabilities who were currently serviced across various public school districts within their respective states. Also provided was contact information (i.e., names, addresses, and telephone numbers) of special education directors for each public school district within their respective states. The investigator examined the frame list of school districts (N = 512), and randomly selected school districts from each state which had 10 or more students with varied orthopedic disabilities who were serviced across public school districts. Of the 512 school districts, 420 met the above-mentioned criteria.

Subsequent to creating a listing of randomly selected public school districts with 10 or more students with varied orthopedic disabilities, the investigator then contacted (via telephone) special education directors (from each of the public school districts selected) to inquire about the protocol for gaining access to public schools across the targeted school districts. In addition, the investigator faxed the selected special education directors cover letters explaining the purpose of the proposed research study, and letters
soliciting their participation in the proposed research study. Further, the investigator forwarded (via postal mail) special education directors of each respective state (across selected public school districts) cover letters explaining the purpose of the proposed research, letters soliciting their approval for participation in the proposed research, copies of abstracts of the proposed research, copies of *The Inventory* instrument (see appendix D), and copies of standard consent forms that were to be used to obtain signed consent from: 1) building principals; 2) physical education teachers; and 3) parents or guardians of students with varied orthopedic disabilities who met all of the criteria (i.e., possessed a known orthopedic disability; was included in a GPE class; was enrolled in grades 7-12; and had signed parental or guardian permission) to participate in the proposed research.

Approximately two weeks subsequent to mailing the aforementioned information to state special education directors, the investigator was informed (in writing) by state special education directors, that the standard protocol involved in conducting research in their public schools across each of the participating states required the completion and submittal of research proposal applications (complying with state and LEAs’ guidelines) which had to be reviewed by school districts’ “Research and Evaluation Committees.” Thus, as a means to solicit target participants for participation in the pilot study and the principal study, the investigator requested research proposal applications from special education directors (from each respective state across varying school districts) to conduct research in their public schools.

Subsequent to completing and submitting research proposal applications to conduct research in public schools across four states (i.e., Maryland, Ohio, Wisconsin, and
Virginia), the investigator waited approximately seven weeks for notification of either “approval” or “disapproval” of the proposed research study. Seven weeks subsequent to submittal of the research proposal applications, the investigator was notified in writing as to the status of the submitted research proposal applications.

Of the twelve (12) research proposal applications submitted across the four states, written approval was gained from special education directors across two states (i.e., Maryland and Wisconsin). The remaining ten (10) state special education directors across the states of Ohio and Virginia disapproved the research proposal applications, due to the fact that they did not perceive "direct benefits" for their schools via their participation in the proposed research study. From the two states (i.e., Maryland and Wisconsin) which approved the submitted research proposal applications, frame listings which contained the following: 1) names of local middle and high schools; 2) mailing addresses of local middle and high schools; 3) telephone numbers of local middle and high schools; 4) names of building principals of local middle and high schools; and 5) names/grade levels of students with varied orthopedic disabilities who could potentially participate in the proposed research study were forwarded to the investigator via postal mail by state special education directors.

From the frame listings provided by state special education directors, the investigator then contacted (via telephone) building principals who were identified on the frame lists as having students with varied orthopedic disabilities enrolled in their schools. During telephone conversations with building principals from various school districts across the two participating states, the investigator explained the purpose of the proposed
research study, informed building principals that the proposed research study had been approved by their state special education directors, identified the names of students with varied orthopedic disabilities who were enrolled in targeted schools, and solicited verbal approval from building principals to conduct the study in their schools.

Subsequent to receiving verbal approval via telephone from building principals to conduct research in their schools, the investigator then faxed and mailed via postal mail (to building principals), cover letters which explained the purpose of the proposed research study, copies of signed letters showing approval by building principals’ state special education directors, building principals’ “letter of approval” forms to be signed and returned in self-addressed stamped envelopes, abstracts of the proposed research study, copies of The Inventory instrument, and copies of physical education teachers and parent(s) or guardians consent to participate forms.

Prior to The Inventory instruments being mailed to approved middle and high schools, building principals had verbally agreed to review the research material with their physical education teachers, as a means to verify their physical education teachers’ willingness to participate in the proposed research study. In addition, building principals had verbally agreed to review their school records to verify that students who were identified (on the frame list) by their state special education directors were in fact enrolled in their respective schools, and that such students with varied orthopedic disabilities could potentially participate in the study.

Subsequent to building principals confirming the aforementioned information, they then returned (to the investigator) their signed “building principals’ consent to participate”
forms, along with the names of those physical education teachers who provided physical education services to the identified students. Upon receipt of "building principals’ consent to participate" forms, and names of physical education teachers who taught students who were identified on the frame list, the investigator then contacted (via telephone) those teachers (who had verbally agreed to participate in the study) to confirm their willingness to participate in the study, and to further explain the study. In addition, the investigator provided participating physical education teachers with an opportunity to pose any questions they may have had relative to administration of The Inventory and/or any other related issues concerning the study.

During telephone conversations with participating physical education teachers, the investigator also gathered information from them relative to the number of students they had in their GPE classes who met all of the criteria to participate in the study. Subsequent to obtaining such information, the investigator forwarded cover letters to these identified physical education teachers explaining the purpose of the study and containing "physical education teachers consent to participate" forms with self-addressed stamped envelopes (for the return of their "physical education teacher consent to participate" forms), copies of their signed "building principals’ consent to participate" forms, copies of the administration protocol for The Inventory instrument, and copies of parents or guardians consent to participate forms.

The purpose of mailing the aforementioned information was to provide participating physical education teachers with an opportunity and sufficient time (one-week) to review the research materials for familiarity, clarity and understanding of the
study. Subsequent to one-week from the initial mailing of the information, the investigator contacted (via telephone) physical education teachers to confirm receipt of the postal mailed materials, and to answer questions that these teachers may have had relative to the enclosed materials.

During telephone conversations with participating physical education teachers, the investigator verbally instructed/guided them through the accompanying administration protocol of The Inventory instrument, along with the protocol for handling (via postal mail) completed data (i.e., making copies of completed instruments prior to returning them to the investigator). In addition, the investigator confirmed with participating physical education teachers the number of “parental notification” forms and the number of “parental consent to participate” forms in which physical education teachers needed to accommodate the number of students in their respective GPE classes who met all of the criteria for participation in the study. Lastly, the investigator reiterated the point to participating physical education teachers that no student could participate in the study, unless their signed “parental consent to participate” form was returned to them.

Physical education teachers who returned their signed “parental consent to participate” forms and their “physical education teacher consent to participate” forms to the investigator were forwarded (via postal mail) the specified (requested) number of The Inventory instruments, along with physical education teachers’ context data forms which physical education teachers had to complete and return in provided postage-paid self-addressed envelopes along with students’ completed instruments. Subsequently, seventy-seven (77) GPE teachers across thirty-five (35) school districts within two participating
states (i.e., Maryland and Wisconsin) generated a sample of 254 participants.

**Development and Validation of The Inventory**

The Inventory was based on contact theory, which postulates that the more individuals with differences (in this particular case, students with varied orthopedic disabilities and students without disabilities) are in contact, the more an attitude change will be evidenced (Allport, 1954). Therefore, the research questions were constructed from the theoretical perspective that the development of positive or negative attitudes for students with varied orthopedic disabilities would be based on their perceived positive or negative contacts and interactions with peers without disabilities, physical activity offerings, and physical education teachers within inclusive general physical education (GPE) classes.

The method of item construction of The Inventory was as follows: First, a large (i.e., 120) pool of belief statements was constructed relative to how students with varied orthopedic disabilities felt about being included into GPE classes (Antonak & Livneh, 1988; Fishbein & Ajzen, 1975). These belief statements were to assess the attitudes of students with varied orthopedic disabilities across three factors (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education teachers) in the GPE class. These statements were also categorized into positively and negatively phrased statements, to avoid item-response set by the participants (Kerlinger, 1986; Thomas & Nelson, 1996). Second, The Inventory items were written to reflect the nomenclature (i.e., use of person-first terminology) used in current United States educational law. Third, each item was measured using a 6-point Likert-type scale (i.e., 1 =
strongly disagree, 2 = moderately disagree, 3 = slightly disagree, 4 = slightly agree, 5 = moderately agree, 6 = strongly agree) with no “undecided” point. According to Fishbein and Ajzen (1975), for middle school age children and adults, a 5-7 point scale is valid for measuring attitude. Fourth, the construction of The Inventory instrument items were based on the researcher’s professional experience of working with students with varied orthopedic disabilities in adapted physical education (APE) and GPE contexts, as well as from conversing with students with varied orthopedic disabilities, and their parents or guardians.

**Face and Content Validation**

The first draft of The Inventory instrument, a current abstract of the research study, a cover letter explaining the purpose of the instrument, a 1-10 point rating scale to rate each of the statements and each of the three a priori subscales (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education teachers) on the instrument, and a self-addressed postage-paid envelope were forwarded to a seven member panel of experts. The panel of experts’ (two who were authors of their own attitudinal instruments) purpose was to examine The Inventory instrument for face and content validity. These persons were three APE professors, and four APE/GPE teachers (2 from middle schools, and 2 from high schools) in a Midwestern (Ohio) school district.

**Field Testing of The Inventory**

Subsequent to statements being developed and the establishment of face and content validity by a seven member panel of experts, the next step involved subjecting The
Inventory instrument to a field test, as a means to ensure that The Inventory instrument was developmentally appropriate for its target population and to ensure that the instrument's terminology was appropriate for students with varied orthopedic disabilities in grades 7-12. To that end, the investigator forwarded The Inventory instrument to three GPE teachers who reviewed The Inventory instrument for appropriate wording, and who then administered The Inventory instrument to a target sample (n = 5) of participants who were representative of the target population (i.e., students with varied orthopedic disabilities who were included in GPE classes in grades 7-12) for their feedback relative to their understanding of the statements on The Inventory instrument (Antonak & Livneh, 1988; Fishbein & Ajzen, 1975). In addition to field testing The Inventory instrument with the sample of students with varied orthopedic disabilities, GPE teachers were asked to report information about the appropriateness of The Inventory's administration protocol based on its use with actual students.

**Instrumentation**

**Pilot Study**

A pilot study was conducted on a separate sample (i.e., not including the five field tested participants) of target participants (n = 34), using The Inventory instrument. More specifically, The Inventory instrument was mailed to fifteen (15) GPE teachers (with the provision of self-addressed postage paid envelopes) across 10 school districts within two states (i.e., Maryland and Wisconsin), which resulted in a sample size of 34 participants (again, these participants were representative of the target population) for the pilot study. From reported data obtained from these participants, the investigator subsequently
conducted an item analysis on The Inventory instrument using the Chronbach’s alpha test of internal consistency to determine if the items correlated with each other for each of the three a priori subscales (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education teachers) and across the overall instrument.

**Item Analysis of “The Inventory” Instrument**

According to Antonak and Livneh (1988), and Fishbein and Ajzen (1975) with regard to the construction of attitudinal instruments with the use of Likert-type summated rating scales, item analysis must be conducted on a target population under study to determine the dimensionality of the attitudinal instrument. Item analysis involves examining individual items of the attitudinal instrument within subscales and their total correlation to the overall attitudinal instrument to determine if the items/statements reflect the attitude under study, as it relates to correlation measures (Antonak & Livneh, 1988; Thomas & Nelson, 1996). Relatedly, Hair, Anderson, Tatham, and Black (1995) suggested that in order to obtain a valid and reliable attitudinal instrument, only those items with correlation measures of $r \geq .30$ should be retained on the attitudinal instrument, and those items of $r < .30$ should be discarded from the attitudinal instrument, because such items reduce the overall alpha value.

**Construct Validity**

As a means to reduce the number of variables represented on the attitudinal instrument, and to determine the number of constructs (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education
teachers) under study, Maximum likelihood (ML) factor analysis method of extraction with orthogonal and oblique rotations was employed. More specifically, ML factor analysis was employed on additional data (i.e., unrelated to pilot and principal studies participants) that were collected during the pilot study phase.

According to Hair et al. (1995) with regard to establishing construct validity on The Inventory instrument, a minimum sample size of 100 participants representative of the target population was needed to participate in the pilot study phase of the research study. This particular sample size was sufficient, due to the fact that (subsequent to the deletion of six Likert-type items based on Chronbach's alpha test of internal consistency results) there were seventeen (17) remaining Likert-type items overall on The Inventory instrument. More specifically, in order to establish construct validity measures, a minimum of five participants per item had to be used to interpret the constructs (Hair, et al., 1995).

From the reported pilot study data, construct validity of The Inventory instrument was determined utilizing total and separate subscale (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education teachers) factor analyses of The Inventory instrument.

More specifically, a ML factor analysis method of extraction with orthogonal and oblique rotations was employed to measure the intercorrelations and the percentage of variance among the test scores, which determined the number of constructs that were needed to account for the intercorrelations (Hair et al., 1995). The ML factor analysis method of extraction with orthogonal rotation was utilized to obtain an indication as to the number of factors to extract. Subsequently, ML factor analysis method of extraction
with oblique rotation was chosen by the investigator because, as a result of face/content validity and Cronbach’s alpha test of internal consistency, the three a priori subscale items of The Inventory instrument were correlated with other items (both within each subscale, as well as with the overall instrument) and all the items purported to measure one dimension (i.e., attitude towards inclusion in GPE classes) across the three subscales. In addition, according to Hair et al. (1995), when there is no a prior knowledge of the factor structuring (as in this case), the ML method of extraction should be utilized because its primary objective is to find factor solution among variables. Lastly, subsequent to establishing construct validity on The Inventory instrument, The Inventory instrument was revised so that the items on The Inventory instrument were organized and representative of the construct for each of the subscales.

Reliability Measures

Reliability measures on The Inventory instrument were determined using test-retest reliability to determine stability over time. More specifically, with regard to test-retest reliability, students with varied orthopedic disabilities were administered The Inventory instrument twice by targeted general physical education (GPE) teachers.

Responses from the first (initial) administration of The Inventory instrument were recorded and plotted on a table by the investigator. A week later, The Inventory instrument was administered a second time to the same students by the same GPE teachers using the same administration protocol from the first administration (Fraenkel & Wallen, 1996). Scores from the first and second administration of The Inventory were recorded and compared for stability in responses between the first and second administration. In
addition, prior to using correlational analysis (i.e., Pearson’s Product Moment Correlation) to examine any relationships between variables, a simple scatter plot was constructed to determine the type of relationship (i.e., linear or curvilinear) that existed between the reported scores from the first and second administration, and to observe for outliers in the reported data (Hopkins, Hopkins, & Glass, 1996). When outliers were detected in the reported data between the first and second administration, the investigator re-examined the data for accuracy in terms of measurement and data entry, and used the information to derive at interpretations regarding the reported data.

Lastly, as a result of knowledge obtained from the field testing and the pilot study phases using The Inventory instrument, the following recommendations were implemented for the principal research study: (1) items were reworded to reflect the vocabulary typically used by students in grades 7-12; (2) the type size (i.e., font) was increased, to make the instrument easier to read; (3) the importance of reading the statements twice to participants was stressed to GPE teachers on the accompanying administration protocol sheet for The Inventory instrument; (4) the number of items on The Inventory instrument were reduced (as a result of $r < 0.30$ alpha values reported via the Chronbach’s alpha test of internal consistency); and, (5) subscale two (i.e., attitude towards physical activity offerings) was deleted from The Inventory instrument, as a result of ML factor analysis method of extraction with orthogonal and oblique rotations.

Principal Study

Subsequent to the establishment of face/content validity, internal consistency via item analysis, construct validity, and test re-test reliability measures, the final revised
instrument (i.e., *The Inventory*) was used for principal data collection on a target sample of participants (i.e., students with varied orthopedic disabilities who were included in GPE classes in grades 7-12).

**"The Inventory" Instrument Administration Protocol and Format**

The data collection instrument used to collect data in the principal research study was *The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education*, otherwise referred to as *The Inventory*. This revised instrument was designed to measure the attitudes of students with varied orthopedic disabilities toward their inclusion into general physical education (GPE) classes across two subscale areas: 1) attitude towards peers, and 2) attitude towards physical education teachers.

The first subscale of *The Inventory* instrument consisted of five (5) Likert-type statements relative to the respondent’s attitude towards his/her peers without disabilities in GPE; the second subscale consisted of five (5) Likert-type statements related to the respondent’s attitude towards the physical education teacher in his/her GPE class; and the third section (i.e., demographics) consisted of nine (9) statements which pertained to demographic information about the student respondents. Under each of the statements in subscales one (1) and two (2), there was a 6-point Likert-type scale (i.e., 1-SD = strongly disagree, 2-MD = moderately disagree, 3-SLD = slightly disagree, 4-SA = slightly agree, 5-MA = moderately agree, 6-SA = strongly agree) with no “undecided” point (see Appendix D). Each student read (or had read to him/her) each statement under each section, and then expressed the extent of his/her agreement with each statement.
With regard to scoring of The Inventory instrument, a 6-point coding system was utilized, in which attitudes perceived as positive received a six (6), and attitudes perceived as negative received a one (1). More specifically, the rating for each statement for each respondent was summed to obtain subscale attitude scores and total scale attitude scores (possible total scale scores ranging between 10 to 60). A high score for each particular subscale reflected a positive attitude towards peers without disabilities and positive attitude towards physical education teachers. In contrast, a low score for each particular subscale reflected a negative attitude towards peers without disabilities, or a negative attitude towards physical education teachers. Relatedly, a high total scale attitude score indicated an overall positive perceived social interaction (i.e., contact) in inclusive GPE contexts for students with varied orthopedic disabilities. In contrast, a low total scale attitude score indicated an overall negative perceived social interaction (i.e., contact) in inclusive GPE contexts for students with varied orthopedic disabilities.

The Inventory instrument was designed for both individual and/or group administration and was implemented/facilitated by GPE teachers. Thus, during its administration, instructions were read (by GPE teachers) to students with varied orthopedic disabilities either individually and/or in a group context from The Inventory’s administration protocol sheet (see Appendix D), while the student(s) listened to and/or read the instructions and marked their responses accordingly. In addition, there was a “note to teachers” at the bottom of The Inventory administration protocol sheet, which served as a reminder for GPE teachers not to assist students in their responses.
The second page of The Inventory instrument was a "general directions" page which informed students about the nature of the statements, the issue of "right" and "wrong" responses, and how to select a response that described their thoughts/feelings toward a particular statement. In addition, as a means to assist students with varied orthopedic disabilities with their recall of the 6 point Likert-type scale, a response key describing each possible response (i.e., SD = strongly disagree, MD = moderately disagree, SLD = slightly disagree, SLA = slightly agree, MA = moderately agree, and SA = strongly agree) was located at the top of each page on The Inventory instrument.

Research Sites

The research sites for the pilot study and the principal research study included a total of 73 schools across two states (i.e., Maryland and Wisconsin). Of these, 32 schools were identified as middle schools and 41 schools were identified as high schools. Geographically, these schools were described as a combination of urban, rural, and/or suburban localities.

Sample Selection

Nonrandomized (purposive) sampling selection was used to solicit participants for this research study, due to the fact that the target population of students (i.e., students with varied orthopedic disabilities) were not uniformly distributed across public school districts (middle and high schools) in the United States. Nonrandomized (purposive) sampling involves deliberately selecting participants whom the researcher believes possess the necessary information and characteristics under study (Fraenkel & Wallen, 1996). In addition, nonrandomized (purposive) sampling is considered "information-rich," which
ultimately helps to define and clarify questions of relevance under study (Kerlinger, 1986).

With the use of nonrandomized (purposive) sampling, participants from 12-21 years in age with varied orthopedic disabilities, who were enrolled in general physical education (GPE) classes across grades 7-12 were selected for the principal study. Each participant met all of the following criteria for participation in the research study: (1) possessed a known orthopedic disability; (2) was included in a GPE class; (3) was enrolled in grades 7-12; and (4) had signed parental or guardian permission to participate. Relatedly, as a means to avoid contamination of data, all participants were free of multiple disabling conditions. In fact, all participants were identified as having had an orthopedic (physical) disability only.

Research Design

An Ex Post Facto research design (Campbell & Stanley, 1963; Fraenkel & Wallen, 1996) was employed in this research study, due to the fact that intact groups were used and targeted students with varied orthopedic disabilities were already included into GPE classes. In particular, an Ex Post Facto research design is characterized by the researcher examining variables which are considered characteristics that are present before a research study begins and will not change (Ary, Jacobs, & Razavieh, 1996), in this case, contact between students with varied orthopedic disabilities and students without disabilities in GPE classes. Thus, (as in this particular study) when research studies involve independent variables that cannot be manipulated by the researcher, an Ex Post Facto research (causal comparative) design is appropriate to use (Ary, et al., 1996; Block, 1996; Tripp, et al., 1995).
The dependent variable included summated subscale scores and total scale scores on The Inventory instrument representing attitude towards peers and attitude towards physical education teachers. The Inventory instrument mean scores for individual participants and grouped participants were derived from a 6-point Likert-type scale. Data pertaining to demographic information (i.e., gender, grade level, ethnicity, age, onset of disability, duration of inclusion, and regularly participates in [extracurricular] physical activity) were obtained from section three (i.e., demographics) of The Inventory instrument through selection-type and open-ended items.

Context information was obtained from GPE teachers (using a survey research methodology) (Salant & Dillman, 1994) via a one page demographic data sheet which solicited information from GPE teachers across the following areas: (1) teacher’s gender; (2) number of years teaching physical education; (3) teacher’s certification status; (4) number of students (both, students with and without disabilities) in physical education class; (5) number of students with disabilities in physical education class; and (6) the availability of support personnel in the physical education class.

**Data Collection**

The Inventory instrument was forwarded (via postal mail) to GPE teachers at research sites across the states of Maryland and Wisconsin. More specifically, using a survey research methodology data collection technique (Salant & Dillman, 1994), The Inventory instrument was mailed by the investigator to GPE teachers across two states, where written approval to participate was obtained from their state special education
directors and building principals. The Inventory instruments forwarded to participating physical education teachers were accompanied with cover letters for each GPE teacher which described the purpose of the study and solicited their participation. In addition, standard participation and consent forms, an outline of The Inventory instrument administration protocol, physical education teacher context data sheets, and postage paid self-addressed envelopes (for the purpose of returning data) were included in the mailings. More specifically, the investigator forwarded The Inventory instruments to GPE teachers (i.e., data gatherers) whose students met all of the criteria (i.e., possessed a known orthopedic disability; was included in a GPE class; was enrolled in grades 7-12; and, had signed parental or guardian permission) to participate in the research study.

In particular, the data collection procedure involved GPE teachers administering The Inventory instruments to students with varied orthopedic disabilities who were included into their GPE classes. During the administration of The Inventory instrument, GPE teachers read The Inventory's administration protocol to students and clarified any questions and/or concerns students may have had. Relative to item content, students were asked to respond to statements (in which they read or had read to them) about their inclusion into GPE classes as it related to their attitude towards peers and attitude towards physical education teachers.

Students were assured by their GPE teachers that their participation was voluntary in nature prior to the administration of The Inventory instrument. In addition, as it relates to anonymity, students’ names were not required on The Inventory instruments. Alternatively, students were described based on demographic information provided in
section 3 (i.e., demographics) of The Inventory instrument. Moreover, no school and/or school district was named and/or identified in the research study. Rather, results are reported based on participating schools' geographic location in the United States (i.e., Northeast, Midwest).

Subsequent to students’ completion of The Inventory instrument, data gatherers collected the instruments, examined them for completion, made copies of recorded data (per request by the investigator), and forwarded the instruments to the investigator using the self-addressed postage-paid envelopes that were provided.

Handling of Nonresponse

One of the most common problems associated with survey research methodology pertains to the issue of nonresponse (Salant & Dillman, 1994). Thus, as a means to increase the percentage of returned instruments, the investigator employed the following techniques, as suggested by Salant and Dillman (1994):

1. Forwarded The Inventory instruments with copies of signed letters of approval from school districts' respective special education directors.

2. Contacted physical education teachers (i.e., data gatherers) via telephone prior to the initial mailing of the instruments, to inform them that research study materials were forthcoming.

3. Enclosed cover letters (in the research materials) indicating that the research study was approved by their building principals, along with copies of signed “building principals’ consent to participate” forms.

4. Highlighted (on enclosed cover letters) a deadline date for the return of the completed
instruments.

5. Mailed post card reminders (2 weeks subsequent to initial mailing date) to general physical education teachers.

6. Conducted a second mailing to nonrespondents two weeks subsequent to mailing of post card reminders.

7. Telephoned nonrespondents (i.e., GPE teachers) to confirm receipt of initial mailing packets, second mailing packets, and post card reminders.

8. Telephoned nonrespondents for the return of completed instruments from the second mailing.

Data Analysis

As described earlier, face and content validity of The Inventory instrument was subjectively established via a seven member panel of experts. The seven member panel of experts scored the items of The Inventory instrument using a 1-10 rating scale, and were asked to make specific comments relative to the need for rewording and/or deleting certain items. Subsequently, construct validity was established on The Inventory instrument via ML factor analysis with orthogonal and oblique rotations, and reliability was established via test-retest reliability.

With regard to individual and group measurements of the Likert-type scale items on The Inventory instrument, data measurements were considered (by the investigator) to be interval level measurements. According to Thomas and Nelson (1996), Likert-type scales are considered interval level data measurement, and are used in the analysis of attitudinal data (Kowalski & Rizzo, 1996; Kozub & Porretta, 1998; Yuker, 1988).
Therefore, given the fact that this particular study involved the use of a Likert-type scaled instrument (i.e., The Inventory), data were analyzed descriptively (i.e., means and standard deviations) and parametrically (i.e., 3-way and one way factorial analysis of variance [ANOVA]) to examine mean differences between independent variables on subscale scores and total scale scores.

With regard to the research question pertaining to differences in attitudes toward inclusion into general physical education (GPE) classes between students with varied orthopedic disabilities duration of inclusion and those who regularly participated in physical activity (extracurricular), and those who did not, two separate one-way simple ANOVAs were employed to examine their mean differences as it relates to total and subscale scores. Lastly, additional data pertaining to physical education teachers’ gender, number of years teaching physical education, certification status, number of students in GPE classes, number of students with disabilities in GPE classes, and the availability of support personnel in the GPE classes were reported in the form of descriptive statistics (i.e., frequencies and percentages). The Statistical Package of Social Science (SPSS) 8.0 (1998) statistical analysis program was used to analyze all data, and statistical significance was set at the .05 alpha level for all data analyses.
CHAPTER 4
RESULTS AND DISCUSSION

This chapter presents, interprets, and discusses the results of data analyses relative to the purposes and the research questions for this study. Moreover, this chapter is divided into the following sections: (1) Introduction, (2) Face and Content Validity, (3) Field Testing of The Inventory, (4) Characteristics of Pilot Study Participants, (5) Item Analysis, (6) Construct Validity, (7) Instrument Reliability, (8) Characteristics of Principal Study Participants, (9) Results and Discussion Across Research Questions, and (10) Physical Education Teachers' Characteristics and Teaching Context.

Introduction
The purpose of this research study was twofold. First, it was to develop a valid and reliable attitude assessment instrument entitled: The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education (i.e., The Inventory), to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into general physical education (GPE) classes in grades 7-12. The second intent was to examine the attitudes of students with varied orthopedic disabilities toward their actual inclusion in GPE classes in grades 7-12 using the developed attitude instrument.
The primary research questions to be answered in this research study were:

1. Does The Inventory instrument provide valid and reliable data relative to the attitudes of students with varied orthopedic disabilities toward inclusion into general physical education (GPE) classes?

2. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward their inclusion into GPE classes?

3. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of grade level (i.e., middle school or high school)?

4. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of gender?

5. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of onset of disability (i.e., congenital or acquired)?

6. Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of duration of being included into GPE classes?

7. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward peers without disabilities in GPE classes?

8. Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward the physical activity offerings within GPE classes?
9. Do students with varied orthopedic disabilities who are included into GPE classes exhibit positive or negative attitudes toward GPE teachers?

10. Is there a difference in the attitudes of students with varied orthopedic disabilities who are included into GPE classes between those who regularly participate in (extracurricular) physical activity and those who do not?

As a means to accomplish the purpose of this research, and to answer the research questions, seventy-three (73) schools across the two states of Maryland and Wisconsin participated in this study. More specifically, an ex post facto research design was employed (Campbell & Stanley, 1963) and 117 students with varied orthopedic disabilities in grades 7-12 were administered The Inventory instrument by their physical education teachers to assess their attitudes toward inclusion in their respective GPE classes, including their attitudes toward peers without disabilities and attitudes toward physical education teachers.

With regard to sample size across both pilot and principal studies, there were a total of 254 participants from 73 schools who participated in the study. Prior to data collection, written consent was obtained from state administrators, state special education directors, building principals, GPE teachers, and parents or guardians of targeted students with varied orthopedic disabilities for their participation in the study. Lastly, to answer the research questions and to determine if significance existed within groups and between groups as it relates to students with varied orthopedic disabilities in grades 7-12 and their attitudes toward inclusion in GPE classes, both descriptive and parametric analyses were utilized.
Face and Content Validity

As it relates to the development of The Inventory instrument, initially, face and content validity were subjectively established by a seven member panel of experts. In particular, members of the panel were considered experts, because they had extensive practical experience teaching students with varied orthopedic disabilities in inclusive GPE settings, and/or they were authors of developed attitude instruments. Comments from the seven member panel of experts related to rephrasing various items, and deleting certain words/items, and/or statements. In addition, comments that were provided from the panel of experts were used as a measure of face and content validity of The Inventory instrument, and served as a means for revising and refining the original instrument.

Across the seven member panel of experts, results indicated that the average rating score reported on The Inventory instrument was 9 (on a rating scale from 1-10), and the average score for each of the three subscales reported was 8.5 (on a rating scale from 1-10, with 1 representing the lowest score and 10 representing the highest score). These ratings indicated that all of the reviewers believed that the statements assessed the attitudes of middle and high school students with varied orthopedic disabilities toward their inclusion into GPE classes.

Field Testing of The Inventory

Three (3) GPE teachers reviewed The Inventory instrument for suitability. Subsequently, the three GPE teachers administered The Inventory instrument to a target sample of participants (n = 5) during the field testing phase of the study. In addition, GPE teachers reported information regarding the appropriateness of The Inventory instrument
administration protocol and its use with actual participants. In particular, GPE teachers reported that the time duration for administration of The Inventory instrument to actual students was between 20 to 25 minutes. GPE teachers also reported that the majority of the students with varied orthopedic disabilities who were involved in the field test did not experience any problems relative to understanding the instructions for completion of The Inventory instrument.

**Characteristics of Pilot Study Participants**

The original 23 Likert-type item attitudinal instrument was administered by 15 GPE teachers across 10 school districts to a sample of 34 students with varied orthopedic disabilities (15 males, 19 females) (unrelated to the principal study sample), across grades 7-12. With regard to ethnicity, participants were provided with options of self-identification as: 1) African American, 2) Asian/Pacific Islander, 3) White, Non-Hispanic, 4) Hispanic, Nob-White, 5) Native American, or 6) Other. Moreover, participants ranged in age from 12 to 20 years, with a mean age of 14.6 years, and met all of the following criteria for participation in the study: (1) possessed a known orthopedic disability; (2) was included in a GPE class; (3) was enrolled in grades 7-12; and, (4) had signed parental or guardian permission to participate in the study. Relative to onset of disability, participants were categorically grouped as either congenital or acquired (with an acquired mean age onset of 16 years). Lastly, on section four (i.e., demographics) of The Inventory instrument, participants were also asked to report their participation in regular (extracurricular) physical activities or their lack of participation in regular (extracurricular) physical activities (see Table 1).
<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>15</td>
<td>44</td>
</tr>
<tr>
<td>Females</td>
<td>19</td>
<td>56</td>
</tr>
<tr>
<td><strong>Grade Levels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>22</td>
<td>65</td>
</tr>
<tr>
<td>Hispanic, Non-White</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>13</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>17</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

*Table 1: Demographic Information Pertaining to the Characteristics of Pilot Study Participants*
Table 1 continued

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
</table>
| Onset of disability
| Congenital | 28 | 82 |
| Acquired | 6 | 18 |
| Participated in regular (extracurricular) physical activities
| Yes | 28 | 82 |
| No | 6 | 18 |

Additional information reported by participants on section four of The Inventory instrument pertained to participants' duration of inclusion within GPE classes along side their peers without disabilities, and the types of physical activities in which they participated in most frequently. In response to the former, participants' time duration of inclusion in their GPE classes ranged from one to ten years, with a reported mean time duration of four and one-half years of being included. In response to the latter, Table 2 presents descriptive data (i.e., frequency and percentages) pertaining to the pilot study participants' type of physical activity involvement.
Types of physical activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basketball</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Volleyball</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Tennis (Wheelchair)</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Swimming</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Baseball</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Kickball</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Frisbee Tossing</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Track and Field</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Skating (Wheelchair)</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2: Pilot Study Participants' Type of Physical Activity Involvement

Item Analysis

An item analysis (using Chronbach’s alpha test of internal consistency) on the 23 Likert-type item instrument using the 34 pilot study participants’ data was conducted to examine correlations between the three a priori subscales (i.e., attitude towards peers, attitude towards physical activity offering, and attitude towards physical education teachers) attitude items and the overall instrument. As a means to establish internal consistency on The Inventory instrument, data were analyzed using The Statistical Package of Social Science (SPSS) 8.0 (1998). The test results for subscale one (i.e., "attitude towards peers") had a standardized item alpha of .6328, which indicated moderate internal consistency.
More specifically, as it relates to subscale one items, statements number two (2) (i.e., "I talk with most of the students in my physical education class"), and eight (8) (i.e., "Most of my classmates do not seem to mind making changes in the activities, so that I can play") failed to meet Likert's criterion for internal consistency (i.e., these two items had reported alpha values of $r < .30$). Thus, items 2 and 8 were deleted from The Inventory instrument as a means to increase the overall alpha value for subscale one. Table 3 provides data pertaining to the means, standard deviations, and Chronbach's alpha test of internal consistency results for subscale one of The Inventory instrument.

<table>
<thead>
<tr>
<th>Subscale one and items</th>
<th>M</th>
<th>SD</th>
<th>Item total correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Attitude Towards Peers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Most of the time, I enjoy playing with nondisabled students in my physical education class.</td>
<td>31.94</td>
<td>33.69</td>
<td>.3390*</td>
</tr>
<tr>
<td>2. I talk with most of the students in my physical education class.</td>
<td>31.64</td>
<td>35.81</td>
<td>.2032</td>
</tr>
<tr>
<td>3. Most of my classmates in physical education make me feel like I am a part of the class.</td>
<td>31.88</td>
<td>33.13</td>
<td>.4001*</td>
</tr>
</tbody>
</table>

Table 3: **Means, Standard Deviations, and Chronbach's Alpha Test of Internal Consistency Results for Subscale One of The Inventory Instrument**

* indicate items that were significant at $p < .05$. 

74
Table 3 continued

<table>
<thead>
<tr>
<th>Subscale one and items</th>
<th>M</th>
<th>SD</th>
<th>Item total correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I do not want to be included with nondisabled classmates in the general physical education class.</td>
<td>32.94</td>
<td>28.96</td>
<td>.4772*</td>
</tr>
<tr>
<td>5. My classmates make me feel uncomfortable in the general physical education class.</td>
<td>32.11</td>
<td>30.16</td>
<td>.4766*</td>
</tr>
<tr>
<td>6. My classmates in my physical education class are too competitive for me.</td>
<td>32.88</td>
<td>31.25</td>
<td>.4050*</td>
</tr>
<tr>
<td>7. Overall, most of my classmates in my physical education class accept me as part of the class.</td>
<td>31.55</td>
<td>33.82</td>
<td>.3868*</td>
</tr>
<tr>
<td>8. Most of my classmates do not seem to mind making changes in the activities, so that I can play.</td>
<td>31.97</td>
<td>38.69</td>
<td>.0712</td>
</tr>
</tbody>
</table>

With regard to subscale two (i.e., “attitude towards physical activity offerings”) of The Inventory instrument, test results reported a standardized item alpha of .5931, which indicated mild internal consistency. Statements number twelve (12) (i.e., “I really like playing in group activities in my physical education class”) and fourteen (14) (i.e., “I often times watch other students play in activities in my physical education class”) failed to meet Likert’s criterion (i.e., $r \geq .30$) for internal consistency and were deleted from the
instrument. Table 4 provides data pertaining to the means, standard deviations, and Chronbach’s alpha test of internal consistency results for subscale two of The Inventory instrument.

<table>
<thead>
<tr>
<th>Subscale two and items</th>
<th>M</th>
<th>SD</th>
<th>Item total correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>II. Attitude Towards Physical Activity Offerings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I enjoy playing in most activities in my physical education class.</td>
<td>22.50</td>
<td>12.98</td>
<td>.4498*</td>
</tr>
<tr>
<td>10. I can do well in most of the activities in my physical education class.</td>
<td>22.73</td>
<td>12.13</td>
<td>.5327*</td>
</tr>
<tr>
<td>11. Most activities that I participate in are with my classmates.</td>
<td>22.55</td>
<td>13.58</td>
<td>.6045*</td>
</tr>
<tr>
<td>12. I really like playing in group activities in my physical education class.</td>
<td>22.44</td>
<td>16.92</td>
<td>-.0835</td>
</tr>
<tr>
<td>13. I really like playing in individual activities in my physical education class.</td>
<td>23.32</td>
<td>13.43</td>
<td>.3031*</td>
</tr>
</tbody>
</table>

Table 4: Means, Standard Deviations, and Chronbach’s Alpha Test of Internal Consistency Results for Subscale Two of The Inventory Instrument.

* indicate items that were significant at p<.05.
Table 4 continued

<table>
<thead>
<tr>
<th>Subscale two and items</th>
<th>M</th>
<th>SD</th>
<th>Item total correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. I often times watch other students play in activities in my physical education class.</td>
<td>24.52</td>
<td>12.80</td>
<td>.1685</td>
</tr>
</tbody>
</table>

The third subscale of The Inventory instrument (i.e., "attitude towards physical education teacher") had a reported standardized item alpha value of .7187, which indicated (similar to subscale one) moderate internal consistency. As a means to increase the overall alpha value for this subscale, results indicated that items nineteen (19) (i.e., "My physical education teacher listens to my suggestions on ways to include me in activities"), and twenty-two (22) (i.e., "My physical education teacher picks on me in class") were to be deleted from The Inventory instrument, because these items had reported alpha values of $r < .30$. Table 5 provides data pertaining to the means, standard deviations, and Chronbach’s alpha test of internal consistency results for subscale three of The Inventory instrument.
Subscale three and items | M   | SD   | Item total correlation
--- | --- | --- | ---

III. **Attitude Towards Physical Education Teachers**

15. My physical education teacher treats me as part of the class. | 38.35 | 32.35 | .4289*

16. My physical education teacher includes me in most of the activities with my classmates. | 38.55 | 32.13 | .4193*

17. My physical education teacher’s expectations for me are the same as for the other students. | 38.94 | 29.57 | .3015*

18. My physical education teacher does not talk to me. | 38.64 | 30.14 | .4459*

19. My physical education teacher listens to my suggestions on ways to include me in activities. | 38.88 | 32.71 | .2230

20. My physical education teacher seems to know a lot about my disability. | 40.47 | 27.95 | .4366*

21. My physical education teacher makes successful changes to activities in order for me to be included. | 38.73 | 29.53 | .6568*

* Indicate items that were significant at p<.05.

---

Table 5: **Means, Standard Deviations, and Chronbach’s Alpha Test of Internal Consistency Results for Subscale Three of The Inventory Instrument.**

* indicate items that were significant at p<.05.
Table 5 continued

<table>
<thead>
<tr>
<th>Subscale three and items</th>
<th>M</th>
<th>SD</th>
<th>Item total correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. My physical education teacher picks on me in class.</td>
<td>38.76</td>
<td>33.57</td>
<td>.1028</td>
</tr>
<tr>
<td>23. My physical education teacher makes helpful changes for most activities in my P.E. class</td>
<td>.3876</td>
<td>32.42</td>
<td>.4448*</td>
</tr>
</tbody>
</table>

As a result of conducting an item analysis on the 23 Likert-type instrument, items #2, #8, #12, #14, #19, and #22 were deleted from the instrument, due to such items having low correlations (i.e., $r < .30$). Thus, the 23 original items on The Inventory instrument were reduced to 17 Likert-type items across three subscales.

**Construct Validity**

Maximum likelihood (ML) method of extraction factor analysis, utilizing both orthogonal and oblique rotations, were conducted on the total scale of The Inventory instrument, and separately for each of the three subscales (i.e., attitude towards peers, attitude towards physical activity offerings, and attitude towards physical education teachers) contained within the 17 Likert-type instrument, as a means to determine if the total scale and each of the three subscales measured a single construct (i.e., attitude towards inclusive GPE). Descriptive statistics (i.e., means and standard deviations) for The Inventory instrument using a second sample ($n = 103$) (unrelated to pilot study [$n=34$])
sample or principal study \( n=117 \) sample) are presented in Table 6.

<table>
<thead>
<tr>
<th>Subscales and Items on The Inventory</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
</table>

### I. Attitude Towards Peers

1. Most of the time, I enjoy playing with nondisabled students in my physical education class. 4.69  1.10

2. Most of my classmates in physical education make me feel like I am a part of the class. 4.92  1.08

3. I do not want to be included with nondisabled classmates in the general physical education class. 4.46  1.26

4. My classmates make me feel uncomfortable in the general physical education class. 3.92  1.27

5. My classmates in my physical education class are too competitive for me. 3.86  1.32

6. Overall, most of my classmates in my physical education class accept me as part of the class. 4.75  .879

---

Table 6: Descriptive Statistics for The Inventory Instrument \( n = 103 \)
Subscales and Items on The Inventory

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>II. Attitude Towards Physical Activity Offerings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I enjoy playing in most activities in my physical education class.</td>
<td>4.56</td>
<td>.976</td>
</tr>
<tr>
<td>2. I can do well in most of the activities in my physical education class.</td>
<td>5.15</td>
<td>.813</td>
</tr>
<tr>
<td>3. Most activities that I participate in are with my classmates.</td>
<td>4.47</td>
<td>.998</td>
</tr>
<tr>
<td>4. I really like playing in individual activities in my physical education class.</td>
<td>3.80</td>
<td>1.32</td>
</tr>
<tr>
<td><strong>III. Attitude Towards Physical Education Teachers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. My physical education teacher treats me as part of the class.</td>
<td>4.74</td>
<td>.870</td>
</tr>
<tr>
<td>2. My physical education teacher includes me in most activities with my classmates.</td>
<td>4.66</td>
<td>.809</td>
</tr>
<tr>
<td>3. My physical education teacher’s expectations for me are the same as for the other students.</td>
<td>4.76</td>
<td>1.00</td>
</tr>
<tr>
<td>4. My physical education teacher does not talk to me.</td>
<td>5.05</td>
<td>1.02</td>
</tr>
<tr>
<td>5. My physical education teacher seems to know a lot about my disability.</td>
<td>3.79</td>
<td>1.19</td>
</tr>
<tr>
<td>6. My physical education teacher makes successful changes to activities in order for me to be included.</td>
<td>4.51</td>
<td>.779</td>
</tr>
<tr>
<td>7. My physical education teacher makes helpful changes for most activities in my physical education class.</td>
<td>4.58</td>
<td>.721</td>
</tr>
</tbody>
</table>
Initially, a ML factor analysis method of extraction with orthogonal rotation (i.e., unrotated factors) was computed on the data (from the second sample of n = 103) to obtain preliminary information as it relates to the commonality between the 17 Likert-type items on the total scale (Hair et al., 1995). Subsequent to the ML factor analysis method of extraction with orthogonal rotation revealing positive correlation (i.e., $r = .80$) among scale items, an ML factor analysis method of extraction with direct oblimin rotation was used to determine the number of common factors to extract. Results of this ML factor analysis method of extraction with direct oblimin rotation on the total scale revealed a three factor model. In addition, ML factor analysis results revealed specifically the intercorrelations between the 17 variables (i.e., the number of Likert-type items on the instrument) and the three factors (i.e., factor loadings).

With regard to factor loadings, results indicated that five of the six items from subscale one on The Inventory instrument loaded on factor one. Item number five (i.e., "My classmates in my physical education class are too competitive for me.") did not load under factor one, indicating that this particular item was inappropriate for this subscale.

With regard to subscale two of The Inventory instrument, results indicated that only one of the four items (i.e., number three) from this subscale loaded under factor two, and the remaining items for this subscale loaded inconsistently under the two remaining factors. In particular, items number one (i.e., "I enjoy playing in most activities in my physical education class.") , two (i.e., "I can do well in most activities in my physical education class.") , and four (i.e., "I really like playing in individual activities in my physical education class.") did not load under factor two, indicating that these three items
were inappropriate for this subscale.

Lastly, relative to subscale three of The Inventory instrument, five of the seven items loaded under factor two. Items number one (i.e., “My physical education teacher treats me as part of the class.”) and seven (i.e., “My physical education teacher makes helpful changes for most activities in my physical education class.”) did not load significantly under factor two, indicating that these two items were inappropriate for this subscale.

Due to the fact that there were 17 Likert-type items (i.e., variables) on The Inventory instrument and a sample size of 103, only items with factor loadings ≥ .55 were deemed appropriate for inclusion on the scale (Hair, et al., 1995). Relatedly, factors with three or more variables loading and with factor loadings ≥ .55 were named to reflect the nature of the content of the items.

With regard to the total percentage of explained variance, the ML factor analysis extraction method with direct oblimin rotation revealed a three factor model, with significant loadings, and three or more variables loading under two factors (i.e., subscale one and subscale three) which explained 56% of the variance. In particular, factor one (i.e., subscale one - Peers) contained five items and accounted for 43% of the variance, in which all of the items on this factor for the subscale related to students with varied orthopedic disabilities and their attitude towards their classmates (i.e., peers). Thus, this factor was named “Peers.” In addition, factor loadings for this factor ranged from .591 to .748 indicating high loadings (Hair et al., 1995).
With regard to factor two (i.e., subscale three - Teachers) in the three factor model, five items accounted for 7% of the variance. All of the items under this factor related to students with varied orthopedic disabilities and their attitude towards teachers in their GPE classes. Thus, this factor was named "Teachers." Relatedly, factor loadings on this factor ranged from .557 to .696, indicating high loadings.

Relative to factor three (one significant loading), 6% of the variance was explained. There was no range score for this factor, because only one item (i.e., "I really like playing in individual activities in my physical education class.") from subscale two loaded on this factor with a reported value of .840. Thus, this factor and subscale was removed from The Inventory instrument because, according to Hair et al. (1995), there must be a minimum of three variables loading on a single common factor in order for the factor to be retained on an instrument (see Table 7).

<table>
<thead>
<tr>
<th>Subscales and Items on The Inventory</th>
<th>Factor Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>I. Attitude Towards Peers</td>
<td></td>
</tr>
<tr>
<td>1. Most of the time, I enjoy playing</td>
<td></td>
</tr>
<tr>
<td>nondisabled students in my physical</td>
<td></td>
</tr>
<tr>
<td>education class.</td>
<td>.568*</td>
</tr>
</tbody>
</table>

Table 7: Factor Loadings of a Three Factor Model with Oblique Rotations (n = 103)

* indicate items with significant loadings
Table 7 continued

<table>
<thead>
<tr>
<th>Subscales and Items on The Inventory</th>
<th>Factor Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>2. Most of my classmates in physical education make me feel like I am a part of the class.</td>
<td>.591*</td>
</tr>
<tr>
<td>3. I do not want to be included with nondisabled classmates in the general physical education class.</td>
<td>.720*</td>
</tr>
<tr>
<td>4. My classmates make me feel uncomfortable in the general physical education class.</td>
<td>.748*</td>
</tr>
<tr>
<td>5. My classmates in my physical education class are too competitive for me.</td>
<td>.480</td>
</tr>
<tr>
<td>6. Overall, most of my classmates in my physical education class accept me as part of the class.</td>
<td>.591*</td>
</tr>
</tbody>
</table>

II. Attitude Towards Physical Activity Offerings

<table>
<thead>
<tr>
<th>Subscales and Items on The Inventory</th>
<th>Factor Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>1. I enjoy playing in most activities in my physical education class.</td>
<td>.682*</td>
</tr>
<tr>
<td>2. I can do well in most of the activities in my physical education class.</td>
<td>.638*</td>
</tr>
<tr>
<td>3. Most activities that I participate in are with my classmates.</td>
<td>-.099</td>
</tr>
</tbody>
</table>

Continue
Table 7 continued

<table>
<thead>
<tr>
<th>Subscales and Items on The Inventory</th>
<th>Factor Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>4. I really like playing in individual activities in my physical education class.</td>
<td>-.113</td>
</tr>
<tr>
<td><strong>III. Attitude Towards Physical Education Teachers</strong></td>
<td></td>
</tr>
<tr>
<td>1. My physical education teacher treats me as part of the class.</td>
<td>.575*</td>
</tr>
<tr>
<td>2. My physical education teacher includes me in most activities with my classmates.</td>
<td>.427</td>
</tr>
<tr>
<td>3. My physical education teacher’s expectations for me are the same as for the other students.</td>
<td>.461</td>
</tr>
<tr>
<td>4. My physical education teacher does not talk to me.</td>
<td>.290</td>
</tr>
<tr>
<td>5. My physical education teacher seems to know a lot about my disability.</td>
<td>.167</td>
</tr>
<tr>
<td>6. My physical education teacher makes successful changes to activities in order for me to be included.</td>
<td>.268</td>
</tr>
<tr>
<td>7. My physical education teacher makes helpful changes for most activities in my physical education class.</td>
<td>.509</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>7.298</td>
</tr>
<tr>
<td>Percentage of variance</td>
<td>42.931</td>
</tr>
</tbody>
</table>

Continue
As a result of estimating construct validity (via Chronbach’s alpha test of internal consistency) on the 17 Likert-type item instrument, subscale two (i.e., “Attitude towards physical activity offerings”) was deleted from The Inventory instrument. Results indicated that only one item (i.e., #3) from subscale two loaded under factor two, and the remaining items for this subscale loaded under the two remaining factors. Thus, The Inventory instrument was reduced to 10 Likert-type items across two subscales (i.e., “Attitude towards peers” and “Attitude towards physical education teachers”).

**Instrument Reliability**

In addition to Chronbach’s alpha test of internal consistency, reliability on the 10 Likert-type item two subscale instrument was also determined via test-retest on a sample of 117 students with varied orthopedic disabilities (unrelated to the pilot study sample [n=34] and second sample [n=103]) across grades 7-12 (32 middle school, 41 high schools) who were included in GPE classes. Scores from the first and second administration of The Inventory instrument were plotted on a table, and a simple scatter plot graph revealed that there was a positive linear correlation between total scale scores between the first (i.e., TestTS#1) and the second (i.e., TestTS#2) administration of The
Inventorv instrument (see Figure 1).

Figure 1: Simple Scatter Plot Graph of the First and the Second Administration of The Inventorv Instrument on a Sample of n = 117

Note: TEST#1TS = Test number one total scale score, and TEST#2TS = Test number two total scale score.
With regard to stability of *The Inventory* instrument across total scale scores from the first and second administration, Pearson $r$ revealed a significant positive correlation coefficient of .63 ($p<.01$) (2 tailed) (see Table 8). Further analyses with the use of Pearson $r$ on each of the two subscales (i.e., subscale I - attitude towards peers, and subscale II - attitude towards physical education teacher) of *The Inventory* instrument from its first and second administration revealed significant correlation coefficients of .65 and .46 ($p<.01$) (2 tailed) respectively (see Tables 9 and 10).

<table>
<thead>
<tr>
<th></th>
<th>Test#1 Total Scale</th>
<th>Test#2 Total Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test#1 Total Scale</td>
<td>1.00</td>
<td>.63**</td>
</tr>
<tr>
<td>Test#2 Total Scale</td>
<td>.63**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Table 8: Pearson $r$ Correlation Coefficients of *The Inventory* Instrument Scores from its First and Second Administration ($n = 117$)**

** indicates correlation is significant at the $p<0.01$ level (2-tailed).
Table 9. Pearson r Correlation Coefficients for Subscale One from the First and Second Administration of The Inventory Instrument (n = 117)

** indicates correlation is significant at the p<0.01 level (2-tailed).

<table>
<thead>
<tr>
<th>Test One Subscale One</th>
<th>Test Two Subscale One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test One Subscale One</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>.651**</td>
</tr>
<tr>
<td>Test Two Subscale One</td>
<td>.651**</td>
</tr>
<tr>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 10. Pearson r Correlation Coefficients for Subscale Two from the First and Second Administration of The Inventory Instrument (n = 117)

** indicates correlation is significant at the p<0.01 level (2-tailed).

<table>
<thead>
<tr>
<th>Test One Subscale Two</th>
<th>Test Two Subscale Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test One Subscale Two</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>.464**</td>
</tr>
<tr>
<td>Test Two Subscale Two</td>
<td>.464**</td>
</tr>
<tr>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>
Characteristics of Principal Study Participants

For the principal study, the validated ten (10) Likert-type item attitudinal instrument was administered by 45 GPE teachers to one-hundred and seventeen (n = 117) students with varied orthopedic disabilities (52 males, 65 females), across grades 7-12. With regard to ethnicity, 31 (27%) of the participants were African Americans, 14 (12%) were Asian/Pacific Islanders, and 72 (61%) were White, Non-Hispanics. In addition, participants ranged in age from 11 to 19 years, with a mean age of 14.7 years. Ninety-six (82%) of the participants had congenital orthopedic disabilities, and 21 (18%) of the participants had acquired orthopedic disabilities (with an acquired mean age onset of 6 years). Lastly, 93 (80%) of the participants reported that they participated regularly in (extracurricular) physical activities, and 24 (20%) of the participants reported that they did not participate regularly in (extracurricular) physical activities (see Table 11).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>52</td>
<td>44</td>
</tr>
<tr>
<td>Females</td>
<td>65</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 11: Demographic Information Pertaining to the Characteristics of Principal Study Participants (n = 117)
Table 11 continued

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>10</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Onset of disability</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital</td>
<td>96</td>
<td>82</td>
</tr>
<tr>
<td>Acquired</td>
<td>21</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participated regularly in (extracurricular) physical activity</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>93</td>
<td>80</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
<td>20</td>
</tr>
</tbody>
</table>

Results and Discussion Across Research Questions

Research Question #1: Does The Inventory instrument provide valid and reliable data relative to the attitudes of students with varied orthopedic disabilities toward inclusion into general physical education (GPE) classes?

Relative to the first research question, as a result of subjecting The Inventory instrument to pilot testing (as a means to establish internal consistency) and subsequently establishing construct validity and reliability, significant statistical results revealed that The
Inventorv instrument (subsequent to modifications) is valid and reliable for assessing the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes.

In this study, the primary purpose was to develop a valid and reliable attitude instrument entitled: The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education (i.e., The Inventory), to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes in grades 7-12. Utilizing contact theory as the theoretical frame (Allport, 1954; Amir, 1969), which postulates that positive attitudinal outcomes are contingent upon: (1) equal status contact; (2) social environment that promotes/encourages contact; (3) contact that is pleasant and rewarding to both parties involved; and (4) contact context that involve common (group) goals that are higher in ranking than individual goals. To the contrary, contact theory posits that negative attitudinal outcomes are developed when: (1) contact produces/creates competition between groups; (2) contact is tension laden; (3) group members as a whole are frustrated; and (4) groups and/or group members have different moral and/or ethnic standards which are objectionable to each other.

With the use of Likert-type items for the construction of a summed rating scale; results from item analysis, construct validity, and test-retest reliability revealed that The Inventory instrument appears valid and reliable. However, contrary to Block's (1995) CAIPE-R instrument, The Inventory instrument is designed for measuring attitudes (from the perspective) of students with varied orthopedic disabilities toward their inclusion into GPE classes. Whereas, the CAIPE-R instrument measures attitudes from the perspective
of children without disabilities toward children with disabilities included into GPE classes. To continue, the two subscales of The Inventory instrument appear valid and reliable for measuring the attitudes of students with varied orthopedic disabilities toward peers without disabilities, and GPE teachers in inclusive GPE classes.

Given the fact that there's been an increase in the number of students with varied orthopedic disabilities included into GPE classes since the inception of the regular education initiative (REI) (Sawyer et al., 1994), the developed instrument could be used to assist local education agency (LEA) personnel. For instance, The Inventory instrument could be used to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes, and enable LEA personnel to make more sound educational decisions relative to such students' placement concerns.

Findings from this study lends support to others (Blinde & McCallister, 1998; Lieberman & Webb, 1999) with regard to the advocacy for assessing the attitudes of students with disabilities relative to determining such students' views regarding inclusion. With that in mind, empirical findings from this study relative to the development of The Inventory instrument suggest that the developed and validated instrument affords such an opportunity. In addition, findings from this study tend to support the idea that, the extant conceptual inclusion model can now be expanded upon with the use of the developed instrument, to involve the attitudes of students with varied orthopedic disabilities who are included into GPE classes.
Research Question #2: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward inclusion into GPE classes?

Results from descriptive statistics on total scale scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities had somewhat (slightly agree) positive attitudes (M = 4.21) toward their overall inclusion into GPE classes (see Table 12).

Based on such a mean score, along with the explanation of positive attitude development relative to contact theory (Allport, 1954), it is possible that students with varied orthopedic disabilities who participated in this study experienced somewhat (slightly agree) positive contacts with their peers without disabilities, and their GPE teachers within inclusive GPE classes. In contrast to Blinde and McCallister’s (1998) findings, students with varied orthopedic disabilities who participated in this study did not possess negative or unfavorable attitudes toward their inclusion into GPE classes.

As a means to explain such findings from the contact theory perspective as it relates to the somewhat (slightly agree) positive attitudes held by students with varied orthopedic disabilities and their overall positive contact. Similar to what several researchers (Amir, 1969; Sherrill, 1985; Yuker, 1988) have suggested with regard to the development of positive attitudes, students with varied orthopedic disabilities in this study possibly experienced equal or superior status to their peers without disabilities, as it relates to their GPE class responsibilities. However, it can not be concluded from this study that the somewhat positive attitudes held by such students were a direct result of their contact with important others in GPE classes. This can not be concluded, because contact theory
was not tested in this particular study, but rather used as a means to explain the findings.

Another important component of contact theory as it relates to the development of positive attitude involves being in a social environment which promotes/encourages contact. Thus, based on the reported findings of students with varied orthopedic disabilities exhibiting positive attitudes, the GPE class environments were probably arranged by GPE teachers in a manner which facilitated or promoted positive contacts between such students and their peers without disabilities (Amir, 1969; Sherrill, 1998; Yuker, 1988). Moreover, as it relates to a plausible explanation based on contact theory, students with varied orthopedic disabilities probably experienced intimate contacts with peers without disabilities and GPE teachers.

Lastly, as a means to explain such findings as it relates to contact theory and the interaction between students with varied orthopedic disabilities, peers without disabilities, and GPE teachers, peers without disabilities probably perceived group goals in their GPE classes as being highly valued, as opposed to their individual goals. Thus, they were probably more receptive to various modifications and/or adaptations that were needed to accommodate students with varied orthopedic disabilities who were included (Yuker, 1988). Relatedly, another plausible explanation is that GPE teachers probably stressed the importance of group goals to both students with and without disabilities, as it related to completing GPE tasks. Contrary to Blinde and McCallister (1998) findings, this finding tends to suggest that GPE teachers effectively monitored their GPE classes, and took into consideration the views of student with varied orthopedic disabilities.
<table>
<thead>
<tr>
<th></th>
<th>Peers M</th>
<th>Peers SD</th>
<th>Teachers M</th>
<th>Teachers SD</th>
<th>Total Scale M</th>
<th>Total Scale SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>21.52(4.30)</td>
<td>6.09</td>
<td>21.70(4.34)</td>
<td>11.13</td>
<td>42.11(4.21)</td>
<td>11.13</td>
</tr>
<tr>
<td><strong>Grade Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>21.18(4.24)</td>
<td>6.37</td>
<td>23.69(4.74)</td>
<td>16.39</td>
<td>42.64(4.26)</td>
<td>10.60</td>
</tr>
<tr>
<td>High</td>
<td>21.74(4.35)</td>
<td>5.94</td>
<td>20.46(4.09)</td>
<td>5.64</td>
<td>41.78(4.18)</td>
<td>11.50</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15.71(3.14)</td>
<td>2.72</td>
<td>17.79(3.56)</td>
<td>15.57</td>
<td>31.19(3.12)</td>
<td>4.97</td>
</tr>
<tr>
<td>Female</td>
<td>26.17(5.23)</td>
<td>3.46</td>
<td>24.83(4.97)</td>
<td>2.99</td>
<td>50.85(5.09)</td>
<td>5.51</td>
</tr>
<tr>
<td><strong>Onset</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital</td>
<td>21.72(4.34)</td>
<td>6.22</td>
<td>22.01(4.40)</td>
<td>11.99</td>
<td>42.69(4.27)</td>
<td>11.06</td>
</tr>
<tr>
<td>Acquired</td>
<td>20.62(4.12)</td>
<td>6.09</td>
<td>22.29(4.06)</td>
<td>5.72</td>
<td>39.48(3.95)</td>
<td>11.29</td>
</tr>
<tr>
<td><strong>Duration of inclusion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 4 years</td>
<td>20.74(4.15)</td>
<td>6.29</td>
<td>23.39(4.68)</td>
<td>16.81</td>
<td>41.12(4.11)</td>
<td>11.14</td>
</tr>
<tr>
<td>5 - 9 years</td>
<td>21.97(4.39)</td>
<td>5.96</td>
<td>20.72(4.14)</td>
<td>5.63</td>
<td>42.69(4.27)</td>
<td>11.15</td>
</tr>
</tbody>
</table>

Table 12: Descriptive Statistics on The Inventory Instrument (n = 117)

Note: The numbers in parentheses represent the total mean divided by the number of items for each subscale of The Inventory instrument.
Table 12 continued

<table>
<thead>
<tr>
<th></th>
<th>Peers</th>
<th>Teachers</th>
<th>Total Scale</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td><strong>Reg. Phys. Activity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>21.18 (4.24)</td>
<td>6.00</td>
<td>21.57 (4.31)</td>
</tr>
<tr>
<td>No</td>
<td>22.83 (4.57)</td>
<td>6.36</td>
<td>22.21 (4.44)</td>
</tr>
</tbody>
</table>

Research Question #3: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of grade level (i.e., middle school or high school)?

Descriptive statistics revealed that across both grade levels (i.e., middle school and high school), students with varied orthopedic disabilities displayed similar somewhat (slightly agree) positive attitudes, with reported mean scores of 4.26 and 4.18 respectively on The Inventory instrument (Table 12).

Results from a factorial ANOVA revealed that there was no statistically significant difference, $F(1,109) = .06, p>.05$, on grade level as it related to the attitudes of students with varied orthopedic disabilities towards inclusion. In addition, there was no statistically significant interaction effect as it related to grade level and the two remaining independent variables (i.e., gender and onset of disability) in the analysis (Table 13).
Based on this finding, regardless of grade level (i.e., middle school or high school), students with varied orthopedic disabilities held similar slightly positive attitudes. To date, there have been no empirical studies conducted, as it relates to contact theory and the attitudes of students with varied orthopedic disabilities toward inclusive GPE classes which support or refute the current finding. However, as a means to explain such findings as it relates to contact theory, it is possible that students with varied orthopedic disabilities at both grade levels (i.e., middle school or high school) experienced similar types of contact or interaction with their peers without disabilities in which they perceived as equal status.

Moreover, across both grade levels (i.e., middle school and high school) GPE contexts, findings from this study as it relates to contact theory tend to suggest that GPE teachers promoted and/or encouraged positive contacts between students with varied orthopedic disabilities and their peers without disabilities. Relatedly, peers without disabilities and GPE teachers across both grade levels possibly perceived their interactions amongst each other to be somewhat pleasant (Allport, 1969).
<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (G)</td>
<td>1</td>
<td>4823.766</td>
<td>4823.766</td>
<td>194.346</td>
<td>.000*</td>
</tr>
<tr>
<td>Grade Level (GL)</td>
<td>1</td>
<td>1.467</td>
<td>1.467</td>
<td>.059</td>
<td>.808</td>
</tr>
<tr>
<td>Onset of Disability (OD)</td>
<td>1</td>
<td>341.300</td>
<td>341.300</td>
<td>13.751</td>
<td>.000*</td>
</tr>
<tr>
<td>G x GL</td>
<td>1</td>
<td>44.024</td>
<td>44.024</td>
<td>1.774</td>
<td>.186</td>
</tr>
<tr>
<td>G x OD</td>
<td>1</td>
<td>50.454</td>
<td>50.454</td>
<td>2.033</td>
<td>.157</td>
</tr>
<tr>
<td>GL x OD</td>
<td>1</td>
<td>3.518</td>
<td>3.518</td>
<td>.142</td>
<td>.707</td>
</tr>
<tr>
<td>G x GL x OD</td>
<td>1</td>
<td>6.607</td>
<td>6.607</td>
<td>.266</td>
<td>.607</td>
</tr>
<tr>
<td>Error</td>
<td>109</td>
<td>2705.429</td>
<td>24.820</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>221841.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>116</td>
<td>14359.556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13: **Three-Way Factorial ANOVA of The Inventory Total Scale Scores Across Gender, Grade Level, and Onset of Disability ($n = 117$)**

* indicates p<.05.
Research Question #4: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of gender?

Factorial ANOVA procedures revealed that females held more positive attitudes ($M = 5.09$) than males ($M = 3.12$) towards their inclusion into GPE classes (Table 12), $F(1,109) = 194.35$, $p<.05$. Further, there was no statistically significant interaction effect as it related to gender and the two remaining independent variables (i.e., grade level and onset of disability) in the analysis (Table 13).

On average, female students with varied orthopedic disabilities in this study who were included into GPE classes perceived their contact experiences with peers without disabilities and GPE teachers to be more positive than their male counterparts. As a means to explain such findings as it relates to contact theory, female students with varied orthopedic disabilities who participated in this study possibly experienced equal status relationships with peers without disabilities. Moreover, as it relates to contact theory, it is also possible that GPE teachers structured activities within GPE classes which promoted equal status relationships amongst female students with varied orthopedic disabilities and their peers without disabilities (Amir, 1969). Similar to Voeltz (1980) findings, where females without disabilities held more favorable attitudes than males toward peers with disabling conditions, relative to contact theory, perhaps some form of reciprocity occurred between females with varied orthopedic disabilities and their female peers without disabilities within this study. Moreover, as it relates to contact theory and a possible explanation for such findings, both parties probably perceived their contact as pleasant and/or rewarding (Allport, 1954; Amir, 1969).
Lastly, as a means to explain such findings relative to contact theory and the
development of positive attitudes, females with varied orthopedic disabilities could have
participated in more activities within their GPE classes where group goals were more
important than individual goals. In contrast, with regard to contact theory and the
development of negative attitudes displayed by males with varied orthopedic disabilities,
such students probably participated in GPE activities where individuals goals were
perceived as important and competition was stressed within their groups (Allport, 1954;

Research Question #5: Is there a difference in the attitudes of students with varied
orthopedic disabilities toward inclusion into GPE classes, as a function of onset of
disability (i.e., congenital or acquired)?

Overall, descriptive statistics revealed that students with varied orthopedic
disabilities whose disabilities were congenital, held more positive attitudes (M = 4.27)
toward their inclusion into GPE classes than such students whose disabilities were
acquired (M = 3.95) (see Table 12). Moreover, results from factorial ANOVA revealed
that these attitude difference were statistically significant, F(1,109) = 13.75, p< .05. There
was no statistically significant interaction effect as it related to onset of disability and the
two remaining independent variables (i.e., gender and grade level) in the analysis (Table
13).

Based on these findings as it relates to contact theory and development of positive
attitudes, it is possible that students with congenital varied orthopedic disabilities who
were included into GPE classes in this study experienced more positive contacts with
peers without disabilities and GPE teachers than students with acquired varied orthopedic disabilities. Moreover, such findings could be attributed to the contention that, since such students were born with their disabilities (i.e., congenital), they did not perceive themselves as being disabled or inferior to their peers without disabilities, and perceived their contact with their peers without disabilities as being equal or superior in status (Allport, 1954; Amir, 1969).

Yuker (1988) suggest that (as it relates to contact theory), of critical importance to the development of positive attitude for students with disabilities, such individual must be accepting of the disability, and willing to discuss the disability. Thus, an alternative explanation for such finding as it relates to contact theory could be attributed to the contention that students with congenital varied orthopedic disabilities who participated in this study were likely more accepting of their disability and more willing to discuss their disability with peers without disabilities and GPE teachers more so than such students who had acquired orthopedic disabilities.

Research Question #6: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of duration of being included into general physical education classes?

As a means to appropriately and accurately answer this research question, duration of being included into GPE classes was coded at two levels (i.e., 1 and 2), due to range in time duration (i.e., from 1 to 9 years). The code "1" represented students with varied orthopedic disabilities who were included into their GPE classes between 1-4 years, and the code "2" represented students with varied orthopedic disabilities who were included...
into their GPE classes between 5-9 years.

Descriptive statistics (i.e., means and standard deviations) revealed that, overall, such students who were included into GPE classes between periods of 1-4 years and 5-9 years held similar (slightly agree) positive attitudes (i.e., $M = 4.11$ and $M = 4.27$ respectively) toward their inclusion into GPE classes (Table 12). Further analysis using a one-way simple ANOVA indicated that duration of inclusion was not statistically significant, $F (1, 115) = .541, p>.05$ (Table 14).

Based on these findings, it appears that regardless of the time duration (i.e., 1-4 years or 5-9 years) of contact between students with varied orthopedic disabilities with peers without disabilities and GPE teachers, it does not automatically mean that the attitude of such students will be favorable or positive, because GPE contexts were more than likely different for each student. This finding lends support to the views of others (Blinde & McCallister, 1998; Tripp et al., 1995) who expressed the belief that students with varied orthopedic disabilities are not typically accepted by their peers without disabilities, regardless as to how long they in are inclusive GPE classes.
Research Question #7: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward peers without disabilities in GPE classes?

Results from descriptive statistics on subscale I (i.e., peers) scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities had positive attitudes (M = 4.30) toward peers without disabilities in GPE classes (Table 12).

It has been suggested by researchers (Sherrill, 1985; Heikinaro-Johansson, & Slininger, 1994) that peer relationships in inclusive GPE classes should be further examined, as a means to develop a better understanding of attitudes in inclusive GPE contexts. Thus, based on such a suggestion, peer relationships between students with varied orthopedic disabilities and their peers without disabilities was examined in this study with an emphasis on contact theory. Findings from this study revealed that, overall, students with varied orthopedic disabilities exhibited positive attitude towards their peers.

Table 14: One-Way Simple ANOVA of The Inventory Total Scale Score on Students' Duration of Inclusion into General Physical Education Classes (n = 117)

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>67.286</td>
<td>67.286</td>
<td>.541</td>
<td>.463</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>14292.270</td>
<td>124.281</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>116</td>
<td>14359.556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
without disabilities within inclusive GPE classes. Similar to Block's (1995) findings, although from a different perspective (i.e., from the perspective of students with varied orthopedic disabilities), positive attitudes were held by such students toward their peers without disabilities in inclusive GPE classes.

Relative to contact theory and the development of positive attitudes, as a means to explain such findings, it is possible that students with varied orthopedic disabilities who participated in this study experienced equal status relationships with their peers without disabilities; that is, they could've been of the same chronological age, or they could have perceived their responsibilities in GPE classes as equal to their peers without disabilities (Amir, 1969; Sherrill, 1985; Yuker, 1988). Moreover, with regard to contact theory and the development of positive attitudes, the interactions which transpired between students with varied orthopedic disabilities and their peers without disabilities, could have been perceived as cooperative between the two groups. According to Amir (1969), cooperative interaction typically produces positive behavior between peer groups. Relatedly, from a behavioral standpoint, as suggested by Strain and Shore (1977), it is possible that students with varied orthopedic disabilities in this study possessed and displayed positive behaviors, which in turn attributed to the positive behaviors that were displayed by their peers without disabilities.
Research Question #8: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward the physical activity offerings within GPE classes?

As a result of ML factor analysis and the loading of only one significant item, subscale II (i.e., “Attitude of individuals with a disability towards activities offered in general physical education class”) of the original instrument was deleted from The Inventory. Although this research question does have relevance as it relates to understanding the attitudes of students with varied orthopedic disabilities within inclusive GPE settings, this research question cannot be answered with the use of The Inventory, as used in the current study.

Research Question #9: Do students with varied orthopedic disabilities who are included into GPE classes exhibit positive or negative attitudes toward GPE teachers?

Results from descriptive statistics on subscale II (i.e., Teachers) scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities had positive attitudes ($M = 4.34$) toward their GPE teachers (Table 12).

As a means to explain such findings with regard to contact theory and the development of positive attitudes, it is plausible that students with varied orthopedic disabilities in this study held positive attitudes toward their GPE teachers, because the class norms in which their GPE teachers established were probably perceived by such students as being positive (Yuker, 1988). In addition, as Block (1995) suggested, GPE teachers who participated in this study probably avoided segregated types of activities...
within their respective GPE classes, which typically attributes to the development of negative attitudes. The fact that students with varied orthopedic disabilities in this study held positive attitudes toward their GPE teachers, lends support (in the form of reciprocity) to the findings of Schmidt-Gotz, Doll-Tepper, and Lienert (1994), as it relates to GPE teachers preference to teach students with varied orthopedic disabilities. In particular, GPE teachers probably displayed positive attitudes toward students with varied orthopedic disabilities (Schmidt-Gotz et al., 1994), which in turn resulted in positive attitude development by such students.

Research Question #10: Is there a difference in the attitudes of students with varied orthopedic disabilities who are included into GPE classes between those who regularly participated in (extracurricular) physical activity, and those who do not?

Descriptive statistics revealed mean scores of 4.14 and 4.50 respectively, indicating somewhat positive attitudes for both groups (Table 12). Further analysis utilizing a one-way ANOVA revealed that regular participation in (extracurricular) physical activities involving students with varied orthopedic disabilities was not statistically significant, \( F(1, 115) = 2.12, p > 0.05 \) (Table 15).

As an attempt to explain the overall positive attitudes held by students with varied orthopedic disabilities who participated in this study as it relates to contact theory and the development of positive attitudes, perhaps such students perceived themselves as being of equal status to their peers without disabilities whom they interacted within the context of their inclusive GPE classes (Dembo et al., 1975; Sherrill, 1985; Yuker, 1988). Furthermore, in support of findings from previous research (Gottlieb & Gottlieb, 1997;
Schmidt-Gotz, Doll-Tepper & Lienert, 1994; Tripp et al., 1995) with regard to contact
theory and the development of positive attitudes, GPE teachers who participated in this
study possibly promoted or facilitated planned, structured, and cooperative interactions
amongst students with varied orthopedic disabilities and their peers without disabilities.

<table>
<thead>
<tr>
<th>df</th>
<th>SS</th>
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<th>F</th>
<th>Sig.</th>
</tr>
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<tbody>
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<td>1</td>
<td>259.307</td>
<td>259.307</td>
<td>2.115</td>
<td>.149</td>
</tr>
<tr>
<td>115</td>
<td>14100.249</td>
<td>122.611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>14359.556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 15: One-Way Simple ANOVA of The Inventory Total Scale Score on Students’ Participation in Extracurricular Physical Activities (n = 117)

Physical Education Teachers’ Characteristics and Teaching Contexts

Of the 45 participants in the principal study, 27 (60%) were male, and 18 (40%)
were female GPE teachers. Teachers’ years of experience teaching physical education
ranged from 1 year to 38 years, with a mean of 18 years, and they reportedly held valid
teaching certification in physical education. With regard to class size, classes ranged in
size from 10 students to 43 students, with a mean class size of 27 students. Specifically as
it relates to the number of students with varied orthopedic disabilities included into these
GPE classes, the number ranged from 1 to 9, with a mean of 3 such students per GPE class. Lastly, relative to the provision of support personnel, 19 (42%) of the participating physical education teachers reported that they received such support.
CHAPTER 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes this research and provides conclusions and recommendations for future research as it relates to the findings from this study. In particular, this chapter is divided into three sections: (1) Summary, (2) Conclusions, and (3) Recommendations.

Summary

The philosophical shifts in special education related terminology have been constantly changing over the past few decades, relative to schools attempting to develop a universal philosophy for the purpose of appropriately educating individuals with disabilities. From the evolution and implementation of terms such as “mainstreaming,” “least restrictive environment,” “regular education initiative,” and “inclusion,” there has been a challenge amongst educators, relative to how to best meet the educational needs of students with various types of disabilities (Block, 1994; Jansma & French, 1994; Osborne & Diamattia, 1994; Sherrill, 1994; Will, 1986).

According to Sawyer, MacLaughlin, and Winglee (1994), since students with varied orthopedic disabilities typically possessed no cognitive deficits, they were among the first group of students with disabilities to be included into general education classes. Moreover, such students were not perceived by their peers without disabilities and their
teachers as “behavioral problems,” which made them both easily accommodated and accepted across general education and physical education curricular (Downs & Williams, 1994; Yaffe, 1979).

In line with the increased adoption of the educational philosophy of inclusion by school districts across the U.S., numerous attitudinal research studies were conducted, which examined the attitudes of students without disabilities toward inclusion (Block, 1995; Block & Zeman, 1996; Downs & Williams, 1994; Heikinaro-Johansson & Sherrill, 1994; Tripp, French, & Sherrill, 1995). As a key example, Block (1995) found that children without disabilities held positive attitudes toward the inclusion of students with varied orthopedic disabilities into their GPE classes. However, in contrast to Block’s findings, other researchers (Blinde & McCallister, 1998; Tripp et al., 1995) reported that some students without disabilities were not receptive to such inclusion practice. More specifically, according to Blinde and McCallister (1998), Grosse (1991), and Tripp et al. (1995), students with varied orthopedic disabilities often experienced negative feedback and/or the development of negative attitudes when inclusion is not properly planned, and the environment is non-convivial. Thus, if successful inclusion of students with disabilities into GPE classes is to be fostered, then class environments should be free of competition among groups, free of tension among peers, and contacts should be beneficial for both students with and without disabilities (Sherrill, 1998; Tripp et al., 1995; Yuker, 1988).

Some students without disabilities and teachers are not receptive to the practice of inclusion (Heikinaro-Johansson & Vogler, 1996). In fact, teachers’ attitudes of not wanting to work with students with disabilities in inclusive contexts is a contributing
factor for the failure that is often experienced by such students (Block, 1994; Block & Etz, 1995). As a means to better understand attitudinal behaviors possessed by teachers, researchers have provided numerous rationales, ranging from a desired lack of contact with students with disabilities to teachers' self perception of being inadequately professionally prepared (Block & Etz, 1995; Lavay & Depaepe, 1987). With that in mind, even students with varied orthopedic disabilities, who typically present no cognitive deficits or behavioral problems, may not be accommodated in some GPE classes. In that vein, positive attitudes held by all relevant parties (i.e., teachers, students without disabilities, administrators, parents, and students with disabilities) within inclusive GPE classes are very important.

It is important to understand that attitudinal changes (in a positive direction) within an inclusive context will not simply manifest without some form of attitudinal assessment and the changing of negative attitudes by way of educational and/or practical intervention. Thus, assessment of attitudinal components and related behaviors must be undertaken (Sherrill, 1998). In particular, one of the most important considerations should involve assessing the attitudes of students with disabilities who are actually included into GPE classes (Blinde & McCallister, 1998; Lieberman & Webb, 1999).

A favorable attitude is an integral part of successful inclusion, and should be assessed during every phase of the inclusion process (i.e., prior to the inclusion of students with disabilities, during inclusion practices, and at the end of an academic year) (Aloia et al., 1980; Block, 1996; Heikinaro-Johansson & Sherrill, 1994; Tripp et al., 1995). Moreover, according to Maeda et al. (1997/1998), physical educators should begin
exhibiting positive attitudes toward all students. Similarly, Boatwright (1993) and Schnorr (1990) suggested that promoting and facilitating the inclusion of students with disabilities across the entire school system with their peers without disabilities often times promotes the overall acceptance of students with disabilities, and at the same time changes the attitudes of significant others within the school context. We must consider the validity of these suggestions, because schools are typically the first public institution to shape and change students’ attitudes as it relates to the acceptance of students with disabilities (Shapiro, 1993).

Federal legislation (i.e., P.L. 105-17, IDEA) delineates that students with disabilities have the right to provide “input” relative to their placement. However, according to Blinde and McCallister (1998), such students are rarely provided with the opportunity to share their views. Yet, students’ views should be considered, in order to successfully foster inclusion, because students with varied orthopedic disabilities often will have the necessary skills to make a valuable contribution as it relates to their educational placement and programming (Lavay & Depaepe, 1987; Orlansky & Heward, 1981). All too often, school administrators make assumptions that students with disabilities will harbor positive attitudes toward inclusion, without first consulting with such students to seek their views or placement status preference (i.e., full-time or part-time) (Blind & McCallister, 1998; Lieberman & Webb, 1999; Sherrill, 1994).

In addition to assessing the attitudes of students with varied orthopedic disabilities, peer relationships in GPE classes need to be further examined (Sherrill, 1985; Sherrill, Heikinaro-Johansson, & Slininger, 1994). For instance, the effects of exposure and
contact of students with varied orthopedic disabilities on peer relationships within GPE contexts need to be investigated. Voeltz (1980) found that children without disabilities who had experienced previous exposure and contact with peers with disabilities had more favorable attitudes toward their peers without disabilities in inclusive contexts than children without disabilities who did not experience such previous exposure and contact. Relatedly, Shapiro (1993) contends that, as a result of exposure and contact between students with and without disabilities, a form of reciprocity occurs because, students with disabilities benefit as well, in fact, such students tend to set higher goals for themselves. In that light, it could be argued that assessing the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes is critical, because they are consumers of education as well.

The theoretical framework for this research was contact theory (Allport, 1954), which has been frequently cited in the adapted physical activity literature as it relates to assessing attitudes in inclusive GPE classes (Tripp & Sherrill, 1991; Tripp et al., 1995). Contact theory postulates that the more individuals with differences are in contact (i.e., interacting), the more an attitude change will be in evidence (Amir, 1969). Tripp et al. (1995) used contact theory as their theoretical framework to examine the attitudes of students without disabilities in integrated versus segregated physical education settings; however, to date, there has been no empirical research study published utilizing “contact theory” to assess attitudes of students with varied orthopedic disabilities who are included into GPE classes.
The purpose of the current research study was to develop and validate an instrument to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes and to use the validated instrument to examine the attitudes of students with varied orthopedic disabilities toward their actual inclusion into GPE classes. To that purpose, the following ten (10) research questions were addressed:

1) Does The Inventory instrument provide valid and reliable data relative to the attitudes of students with varied orthopedic disabilities toward inclusion into general physical education (GPE) classes?; 2) Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward inclusion into GPE classes?; 3) Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of grade level (i.e., middle school or high school)?; 4) Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of gender?; 5) Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of onset of a disability (congenital or acquired)?; 6) Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of duration of being included into GPE classes?; 7) Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward peers without disabilities in GPE classes?; 8) Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward the physical activity offerings within GPE classes?; 9) Do students with varied orthopedic disabilities who are included into GPE classes exhibit positive or negative attitudes toward GPE teachers?; and, 10) Is there a difference in the
attitudes of students with varied orthopedic disabilities who are included into GPE classes between those who regularly participate in (extracurricular) physical activity and those who do not?

Utilizing an ex post facto research design (Campbell & Stanley, 1963), 73 schools across the states of Maryland and Wisconsin, involving a sample size of 117 students with varied orthopedic disabilities across grades 7-12 participated in the principal study. However, prior to data collection, approval was obtained from The Ohio State University Behavioral and Social Sciences Human Subject Review Committee. Subsequent to approval, participants were solicited via five levels of consent to participate (i.e., state administrators, state special education directors, building principals, GPE teachers, and parents or guardians of students with varied orthopedic disabilities), and data were analyzed via descriptive and parametric statistics.

Relative to development and validation of The Inventory instrument, the theoretical frame was contact theory (Allport, 1954), and Likert's method of summed scales was used to develop the instrument. Relatedly, face, content validity, internal consistency, construct validity, and test-retest reliability on a target sample of students with varied orthopedic disabilities (across field testing, pilot testing, and the principal study) indicated that The Inventory instrument is valid and reliable for assessing the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes. More specifically, the first phase of developing the instrument involved a seven member panel of experts who subjectively evaluated The Inventory instrument. The panel of experts provided written suggestions for revision of the instrument, as well as quantitative
scores for the total scale and each of the three subscales on The Inventory instrument, which indicated their level of agreement or disagreement with the nature of the instrument. Subsequently, a field test involving three GPE teachers and five students with varied orthopedic disabilities across grades 7-12 (using the original 23 Likert-type item instrument) revealed that The Inventory instrument was appropriate and suitable for the intended target population, and that the administration time period (i.e., 20 to 25 minutes) for completing the instrument was acceptable.

Prior to initiating the principal study, a pilot study was conducted, involving 15 GPE teachers across 10 school districts, who administered The Inventory instrument to 34 students (15 males, 19 females) with varied orthopedic disabilities who were included in GPE classes across grades 7-12. Subsequently, using the 34 pilot study participants, Chronbach’s alpha test of internal consistency was implemented among the three a priori subscales and the total scale, for the purpose of establishing internal consistency of The Inventory instrument. As a result of Chronbach’s alpha test of internal consistency, six Likert-type items were deleted from the original 23 Likert-type item instrument, leaving a 17 Likert-type item instrument. Construct validity was then established on the 17 Likert-type item instrument via a Maximum Likelihood (ML) factor analysis method of extraction with orthogonal and oblique rotations on the total scale and each of the three a priori subscales of The Inventory instrument. Results from ML factor analysis method of extraction using orthogonal and oblique rotations revealed a three factor model with acceptable loadings (i.e., $r \geq .55$) on two factors. The loadings on the three factor model suggested that factor three (i.e., subscale II-“Attitude of individual with a disability
towards activities offered in general physical education class") should be deleted from The Inventory instrument due to the insufficient number of variables (i.e., one item) which loaded under this factor. Based on the nature of the content of the items within the remaining two factors on The Inventory instrument, the two factors were named "Peers" (i.e., subscale I), and "Teachers" (i.e., subscale II), which accounted for 56% of the variance.

In addition to establishing reliability on The Inventory instrument via Chronbach’s alpha test of internal consistency, reliability (for the purpose of instrument stability) was established via test-retest on a sample of 117 students with varied orthopedic disabilities across grades 7-12. As a means to identify any relationship between the first and second administrations of The Inventory instrument, a simple scatter plot was utilized, which revealed positive significant correlation (i.e., r = .63) on the total scale. Relatedly, subscales one and two had positive significant correlations as well, with correlation coefficients of .65 and .46 respectively.

Using the developed instrument, the principal study involved 45 GPE teachers who administered The Inventory instrument to 117 students with varied orthopedic disabilities who were included into GPE classes across grades 7-12. Moreover, data analysis using descriptive (i.e., means and standard deviations) and parametric statistics (i.e., factorial and one-way ANOVA procedures) revealed that, overall, students with varied orthopedic disabilities within this study held slightly positive attitudes toward inclusion into GPE classes.
As a result of data analyses on data collected in this study, the researcher offers the following summary of results with regard to the ten research questions.

Research Question #1: Does The Inventory instrument provide valid and reliable data relative to the attitudes of students with varied orthopedic disabilities toward inclusion into general physical education (GPE) classes?

Relative to the first research question, as a result of subjecting The Inventory instrument to pilot testing (as a means to establish internal consistency) and subsequently establishing construct validity, and reliability, significant statistical results revealed that The Inventory instrument (as modified from its original form) is valid and reliable for assessing the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes.

Research Question #2: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward inclusion into GPE classes?

Results from descriptive statistics (i.e., M and SD) on total scale scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities had slightly positive attitudes (M = 4.21) toward their overall inclusion into GPE classes.

Research Question #3: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of grade level (i.e., middle school or high school)?

Descriptive statistics (i.e., M and SD) revealed that across both middle school and high school grade levels, students displayed similar (slightly positive) attitudes. Moreover, factorial ANOVA revealed that there was no statistically significant difference on grade
level as it related to the attitudes of students with varied orthopedic disabilities towards inclusion. In addition, there was no statistically significant interaction effect as it related to grade level and the two remaining independent variables (i.e., gender and onset of disability) in the analysis.

**Research Question #4: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of gender?**

Descriptive statistics (i.e., M and SD) revealed that females held more positive attitudes than males toward their inclusion into GPE classes. Furthermore, factorial ANOVA revealed that there was statistically significance as it related to attitudes of students with varied orthopedic disabilities and gender. Lastly, there was no statistically significant interaction effect as it related to gender and the two remaining independent variables (i.e., grade level and onset of disability) in the analysis.

**Research Question #5: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of onset of disability (i.e., congenital or acquired)?**

Overall, results (i.e., M and SD) revealed that students with varied orthopedic disabilities whose disabilities were congenital, held a more positive attitude toward their inclusion into GPE classes than those students whose disabilities were acquired, and those results were statistically significant based on ANOVA procedures. However, there was no statistically significant interaction effect as it related to onset of disability and the two remaining independent variables (i.e., gender and grade level) in the analysis.
Research Question #6: Is there a difference in the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, as a function of duration of being included into GPE classes?

Descriptive statistics (i.e., M and SD) revealed that, overall, students with varied orthopedic disabilities who were included into GPE classes between periods of 1-4 years and 5-9 years held similar attitudes toward inclusion into GPE classes. Further analysis using a one-way ANOVA indicated that duration of inclusion was not statistically significant.

Research Question #7: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward peers without disabilities in GPE classes?

Results on subscale I (i.e., peers) scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities held slightly positive attitudes toward peers without disabilities in GPE classes.

Research Question #8: Do students with varied orthopedic disabilities exhibit positive or negative attitudes toward the physical activity offerings within GPE classes?

As a result of ML factor analysis, subscale II (i.e., “Attitude of individuals with a disability towards activities offered in general physical education class”) of the original instrument was deleted from The Inventory. Therefore, this research question cannot be answered within the current study. However, this research question does have relevance as it relates to understanding the attitudes of students with varied orthopedic disabilities within inclusive GPE settings, and should be examined in future research.
Research Question #9: Do students with varied orthopedic disabilities who are included into GPE classes exhibit positive or negative attitudes toward GPE teachers?

Results on subscale II (i.e., Teachers) scores of The Inventory instrument revealed that, overall, students with varied orthopedic disabilities had slightly positive attitudes toward these GPE teachers.

Research Question #10: Is there a difference in the attitudes of students with varied orthopedic disabilities who are included into GPE classes between those who regularly participated in (extracurricular) physical activity, and those who do not?

Findings within this study revealed that there were slightly positive attitudes for students with varied orthopedic disabilities included into GPE classes between those who regularly participated in (extracurricular) physical activity, and those who did not. Further analysis utilizing a one-way ANOVA revealed that regularly participating in (extracurricular) physical activity or not doing so was not statistically significant.

Conclusions

Taking into consideration the uniqueness of this study (i.e, first empirical based research study which involved assessment of attitudes of students with varied orthopedic disabilities toward inclusive GPE classes) findings from this research adds important information to the adapted physical activity literature. However, findings from this study should be viewed with caution with regard to generalization beyond the sample used. Further, the researcher caution the reader due to several limitations: (1) only two states participated in the study; (2) students in intact classes were administered the instruments;
(3) there was a 58% return rate of the instruments from school districts; (4) each participant brought his/her own unique physical activity history of experiences into the study; and (5) due to nonrandomness, participants may not have been representative of the larger population of students with varied orthopedic disabilities.

Despite those limitations, findings obtained in this study allow for several conclusions:

1. The Inventory instrument appears valid and reliable for measuring the attitudes of students with varied orthopedic disabilities who were included into GPE classes across grades 7-12. Clearly a need exist to continue use of the instrument to assess the attitudes of students with varied orthopedic disabilities toward their inclusion.

2. Overall, it was found that students with varied orthopedic disabilities who were included in GPE classes held slightly positive attitudes toward their inclusion. However, based on the limitations of this study, it cannot be clearly determined why this finding occurred. This does, however, emphasize the need to continue to examine the attitudes of students with varied orthopedic disabilities and to seek ways to improve the attitudes of such students.

3. Students with varied orthopedic disabilities across middle school and high school contexts held similar (slightly positive) attitudes toward their inclusion into GPE classes. This supports contact theory, in that this finding indicates that regardless of grade level, such students appear to have experienced similar positive meaningful contacts within inclusive GPE contexts. However, research that measures observed interactions (i.e., contacts) should be conducted to determine what aspects of contact theory are operational
in such settings. Lastly, based on the limitations of this study, it cannot be clearly
determined why this finding occurred.

4. Females with varied orthopedic disabilities held significantly more positive attitudes
toward inclusion into GPE classes than their male peers with varied orthopedic disabilities.
One plausible explanation for this finding is that females with varied orthopedic disabilities
experienced more positive contacts with their peers without disabilities and their GPE
teachers than males with varied orthopedic disabilities. Other explanations are also
possible.

5. Students with congenital varied orthopedic disabilities held significantly more positive
attitudes toward their inclusion into GPE classes than did students with acquired varied
orthopedic disabilities. As it relates to contact theory and the development of positive
attitudes, this finding might indicate that students with congenital disabilities perceived
themselves as equal to their peers without disabilities more so than students with acquired
disabilities, thus, they experienced more positive contacts. However, based on the
limitations of this study, it cannot be clearly determined why this finding occurred. In fact,
other explanations are tenable as well, such as students with varied orthopedic self-
perception of themselves, that is, whether they perceive themselves as attractive or
unattractive, and/or athletically inclined or unskilled.

6. Students with varied orthopedic disabilities who were included into GPE classes
between 1-4 years and 5-9 years held similar (slightly positive) attitudes. This finding
tends to suggest that regardless of the time duration of being included, attitudes are not
necessarily affected. However, based on the limitations of this study, it cannot be clearly
determined why this finding occurred.

7. Overall, students with varied orthopedic disabilities held slightly positive attitudes toward peers without disabilities in GPE classes. This finding supports the notion that students with varied orthopedic disabilities experienced positive contacts with their peers without disabilities within GPE classes. However, based on the limitations of this study, it cannot be clearly determined why this finding occurred.

8. Subscale II (i.e., "Attitude of individuals with a disability towards activities offered in general physical education class) of the original instrument was deleted from The Inventory instrument, thus, it could not be determined from this study as to whether or not students with varied orthopedic disabilities exhibited positive or negative attitudes toward the physical activity offerings within GPE classes.

9. Overall, students with varied orthopedic disabilities in this study held slightly positive attitudes toward their GPE teachers. Thus, it can be reasonably assumed, based on contact theory, that such students experienced positive contact with their GPE teachers. However, based on the limitations of this study, it cannot be clearly determined why this finding occurred.

10. Overall, students with varied orthopedic disabilities who regularly participated in (extracurricular) physical activity and those who did not held similar (slightly positive) attitudes. Based on this finding, it can be reasonably inferred that students with varied orthopedic disabilities participation or lack of participation in (extracurricular) physical activities did not affect their attitudes toward inclusion into GPE classes. However, based on the limitations of this study, it cannot be clearly determined why this finding occurred.
Recommendations

As a result of the findings from this study, the following are recommendations for future research studies involving students with varied disabilities who are included into general physical education (GPE) classes:

1. A study needs to be conducted to assess the attitudes of students with varied orthopedic disabilities toward their inclusion into GPE classes prior to and subsequent to their placement into such inclusive GPE classes.

2. A study needs to be conducted to assess the type of activities that are used within inclusive GPE classes by GPE teachers to facilitate/promote positive contacts between students with and without orthopedic disabilities.

3. A study needs to be conducted to assess gender specific variables which affect the attitudes of male and female students with varied orthopedic disabilities towards inclusive GPE classes. For instance, research should be conducted to determine whether or not females and males encounter similar interactions within inclusive settings.

4. A study needs to be conducted to use The Inventory instrument to assess the attitudes of students with other forms of mild disabilities (e.g., learning disabled, visually impaired, mild mentally retarded) who are included into GPE classes, as a means to better understand their attitudes toward such an environment.

5. Conduct a study to examine the effects of personal attributes such as ethnicity and/or type of orthopedic disability on the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes.
6. Conduct a qualitative analysis of inclusive GPE classes and observe interactions between students with varied orthopedic disabilities, peers without disabilities, and GPE teachers, as a means to determine the type(s) of interactions which best facilitates or promotes inclusion. Such a study would help determine what components of contact theory are functional in inclusive GPE contexts.

7. Conduct a comparison study, examining the attitudes of students with varied orthopedic disabilities with those with other mild forms of disabilities who are included into GPE classes.

8. Conduct a research study which stratifies students with varied orthopedic disability types (e.g., cerebral palsy, semi, para, or hemi paralysis, spina bifida, or muscular dystrophy), as means to explore and examine the nature of attitudes across orthopedic disability types, as it relates to inclusion into GPE classes.

9. Conduct a research study with the use of a control group involving students without disabilities, as a means to further understand how GPE contexts impact the attitudes of both students without disabilities, and students with varied orthopedic disabilities.

10. Conduct a research study assessing the attitudes of students with varied orthopedic disabilities toward inclusion into GPE classes, examining each component of contact theory, by observing contact behaviors of all parties (e.g., teachers, para professionals, students with disabilities, and their peers without disabilities) involved in the inclusion process.
LIST OF REFERENCES


Counseling, 1 (1), 50-54.


disabilities. New York: Springer.

Research Involving Human Subjects

ACTION OF THE INSTITUTIONAL REVIEW BOARD

With regard to the employment of human subjects in the proposed research protocol:

97B0101 INDIVIDUALS' ATTITUDE TOWARD GENERAL PHYSICAL EDUCATION.
Paul Jenness, Daniel Webb, Physical Activity and Education Services

THE BEHAVIORAL AND SOCIAL SCIENCES HUMAN SUBJECTS IRB HAS TAKEN THE FOLLOWING ACTION:

___ APPROVED   __ DISAPPROVED
___ APPROVED WITH CONDITIONS*   ____ WAIVER OF WRITTEN CONSENT GRANTED

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least three (3) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subjects IRB for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the IRB, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: March 5, 1999
Signed: [Signature]

(Chairperson)
WRITTEN CONSENT FROM PARTICIPATING RESEARCH SITES
(APENDIX B)
January 6, 1999

Daniel Webb
Dept. of Health, Physical Education,
Recreation and Sports
Mississippi State University
McCarthy Gym, room 121
PO Box 6186
MS State, MS 39762

Dear Dr. Webb:

As Director of Special Education in a large urban school district, I feel your research will have a dramatic impact on how students with varied types of orthopedic disabilities are included in physical education classes. It is imperative that students with orthopedic disabilities have an opportunity to access general physical education programs. I am confident that your proposal will provide our district with the information and recommendations that will assist us in delivering a meaningful education program to all students.

I enthusiastically support and am impressed with the focus of the proposal. Too often students with special needs are not included in general education programming. Every effort must be made to prepare teachers and provide greater educational opportunities to all students.

I applaud your efforts to help provide Milwaukee Public Schools' physical education teachers with additional effective pedagogical strategies that could be used to improve upon appropriately educating students with varied types of orthopedic disabilities.

Dr. Webb, Milwaukee Public Schools will assist you in gaining access to parents, teachers and students in order to help you obtain the necessary information outlined in your proposal.

Again, I am enthusiastic and supportive of your proposal. Milwaukee Public Schools system is looking forward to working with you on this very important project.

Sincerely,

Estell Sprewer, Director
Division of Special Services

BS/ftr
February 2, 1999

Dr. Daniel Webb, Assistant Professor
Mississippi State University
Department of Health, Physical Education
Recreation and Sport
P.O. Box 6186
Mississippi State, MS 39762-6186

Dear Mr. Webb:

I enjoyed meeting with you and reviewing your research proposal "An Attitudinal Analysis of Students with Orthopedic Disabilities Toward General Physical Education." Your request for permission to conduct this study has been approved. However, approval does not guarantee either the quality of the research or access to subjects. As principal investigator, you are responsible for obtaining permission from principals to conduct research in individual schools. All student and school level information should be kept confidential, and anonymity of individual student and participating schools should be reserved.

Please provide us with a copy of your approved research proposal and a letter of approval for the protection of human subjects from Mississippi State University. Also note that you are required to submit a revised research proposal to READ should your research project change in the way human subjects would be utilized or impacted. Upon completion of your study, a final report must be submitted to READ.

Approval is valid for one year from this date. Renewal should be requested at least one month before approval expires. The reference number in the upper right corner has been assigned to the protocol, and we ask that you cite that number in future correspondence.

Your study has the potential to provide useful information to teachers and principals working with children who have orthopedic disabilities. Let us know if we can be of further assistance to you. Thank you for your interest in our students.

Sincerely,

Zelda I. Holcomb, Ph.D.
Research, Evaluation and Accountability Officer

ZIH/rmm
May 3, 1999

Daniel Webb, Ph.D.
Assistant Professor
Post Office Box 6186
Department of HPERS
McCarthy Gym
Mississippi State, MS 39762

Dear Dr. Webb

The Baltimore County Public Schools are looking forward to participating in your research study, *An Attitudinal Analysis of Students with Orthopedic Disabilities Toward General Physical Education*. Currently, our county utilizes a consultative model, with adapted physical educators, to assist physical education teachers in providing adapted physical education to students with disabilities. The Office of Health and Physical Education is especially interested in your findings to improve the quality of physical education for all students.

Paul Mazza, Director of Research and Data Analysis for Baltimore County Public Schools has been sent your proposal for approval and will be able to assist you in the administration protocol for "The Inventory" instrument. We look forward to meeting you and collaborating with you on this project.

Sincerely,

Linda Webb
Adapted Physical Educator

Copies to: Marjorie Rofel, Director, Special Education
Sarajane Quinn, Coordinator, Office of Health and Physical Education
STANDARD PARTICIPATION CONSENT FORMS
(APPENDIX C)
Dear:
My name is Daniel Webb and I am an Assistant Professor at Mississippi State University in the Department of Health, Physical Education, Recreation and Sports, and my advisor is Dr. Paul Jansma. My proposed dissertation topic is entitled: An Analysis of Students with Orthopedic Disabilities Attitudes Toward General Physical Education. The purpose of my study is twofold. First, is the development of a valid and reliable assessment instrument to be named: The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education (i.e., The Inventory), to assess the attitudes of students with varied orthopedic (physical) disabilities toward their inclusion into general physical education (GPE) classes. A second purpose is to use the developed instrument to examine the attitudes of students with orthopedic (physical) disabilities toward their inclusion into GPE classes. Permission will be obtained at the district level through our College of Education prior to any data collection. In addition, written permission will be obtained from teachers to administer The Inventory, as well as from parents of students selected for participation in the study.

So that I am able to obtain an adequate number of students with varied orthopedic (physical) disabilities who are included into GPE classes, I am requesting permission to have The Inventory administered to students at your school during their physical education class period.

Your assistance in this matter is greatly appreciated. I look forward to a favorable response and thank you for your thoughtful consideration. Please call should you have any questions concerning this study. If you are interested in allowing me to use your school as a data collection site please sign below and return. Again, Thank you.

Sincerely,

Daniel Webb, Asst. Prof.
Dept. of Health, Physical education, Recreation and Sports
Mississippi State University
(601) 325-7232 (O)
(601) 338-3301(H)

I __________________ agree to allow ________________________________ to participate in the study described above. (school name)

Signed ________________________________ Date __________
Dear:

I have talked with your building level administrator and have obtained permission to use students in your school to complete my dissertation research study entitled: **An Analysis of Students with Orthopedic Disabilities Attitudes Toward General Physical Education** (advisor is Dr. Paul Jansma). With your kind permission, I would like for you to administer a questionnaire entitled: **The Attitude Inventory of Students with Orthopedic Disabilities in General Physical Education** (i.e., The Inventory), to assess the attitudes of your students with varied orthopedic (physical) disabilities toward their inclusion into general physical education (GPE) classes. Administration protocols will accompany The Inventory, and will take approximately 20-25 minutes to have students complete the instrument. In addition, I will need you to disseminate consent forms to the students who meet the criteria to participate in the study (i.e., physically disabled and included in the GPE class in grades 7-12). If you decide to participate in the proposed study, you are free to withdraw at anytime during the procedures. If you are interested in helping complete the proposed study, please print your name and sign below. Thank you.

Sincerely,

Daniel Webb, Asst. Prof.
Dept. of Health, Physical Education, Recreation and Sports
Mississippi State University
(601) 325-7232 (O)
(601) 338-3301 (H)

I____________________________ agree to participate in the study described above.

Signed ___________________________________ Date ________________

(Teacher)
PARENT INFORMATION LETTER

Investigators: Paul Jansma, Ph.D., Daniel Webb, MS

Research Project: An Analysis of Students with Orthopedic Disabilities Attitudes Toward General Physical Education

The purpose of the proposed study is twofold. First, is to develop a valid and reliable inventory instrument to assess the attitudes of students with varied orthopedic (physical) disabilities toward inclusion into a general physical education (GPE) class. Second, is to examine the attitudes of students with varied orthopedic (physical) disabilities toward their inclusion into the (GPE) class. The selection criteria established for this study involve the following: (1) each student must have an orthopedic disability; (2) each student must be in one of the targeted grades (7-12); and (3) each student must be included in a general physical education class.

If your son/daughter and you agree to participate, we will need to have access to personal information (e.g., the IEP) about your child such as age and type of orthopedic disability. The amount of participation time requested for the completion of the questionnaire by your child will require 20-25 minutes. All attempts will be made to assure that the time required to participate in the study does not interfere with your child’s school work.

Participation in the study will be voluntary and participants can withdraw at any time. Participation in the study will in no way harm or affect your child. Students will participate in the completion of the questionnaire with their regular physical education teacher. Participation will involve the physical education teacher reading and explaining the purpose of the questionnaire along with the directions for completion. The teacher will then read each statement to the student(s), and make sure that each student has marked a response before progressing to the next statement.

This activity has been approved by your school district, your child’s principal, and your child’s teacher. If you have any questions or concerns please call (601) 338-7232.

Signed: __________________________
(Daniel Webb)
I assent to participate in research entitled:

An Analysis of Students with Orthopedic Disabilities Attitudes Toward General Physical Education

Paul Jansma, Ph.D. ________________________________ or his/her authorized representative has explained the purpose of the study, the procedures to be followed, and the expected duration of my participation. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: ___________________________ Signed: ________________________________ (Participant)

Signed: ___________________________ Signed: ________________________________
(Principal Investigator or his/her Authorized Representative) (Person Authorized to Consent for Participant - If required)
THE INVENTORY* AND ADMINISTRATION PROTOCOL
(APPENDIX D)

*Note: Asterisked items represent those used in principal study.
Non-asterisked items represent all those used at the onset of the validation and reliability process.
AN ANALYSIS OF STUDENTS WITH ORTHOPEDIC DISABILITIES ATTITUDES TOWARD GENERAL PHYSICAL EDUCATION
DANIEL WEBB, THE OHIO STATE UNIVERSITY

Administration protocol for The Inventory:

This survey takes approximately 20-25 minutes to complete and can be administered individually or in a group. This survey could be administered at the beginning of a class or near the end of class. The survey can also be administered in a gymnasium or in a classroom setting. Please make sure that the student completes the survey in a noise free environment.

TEACHER INSTRUCTIONS:

Please read the following instructions to each student prior to that student’s completion of the survey.

“This survey contains a series of statements which measure your attitude as it relates to your inclusion into the general physical education class. Questions on The Inventory will provide you with an opportunity to express how you feel about your inclusion into general physical education, about the activities in which you participate, about the peers in your physical education class, and about the teacher. There are no right or wrong responses. Circle the response that best describes your thoughts about each statement; do not leave any statement unanswered. When you are completely finished, I will return your written responses to a research center.”

“If you decide at any time that you no longer wish to answer questions in this activity, you may just stop without any consequences at all.”

Circle one of the following choices: Strongly Agree (SA), Moderately Agree (MA), Slightly Agree (SLA), Slightly Disagree (SLD), Moderately Disagree (MD), Strongly Disagree (SD). Let me read you an example of a statement.

EX. I really like when it is time to attend physical education. (YOU WOULD RESPOND BASED ON YOUR FEELINGS ABOUT THE STATEMENT, BY CIRCLING ONE OF THE CHOICES).

Are there any questions before we get started? I will read each statement to you, and you will mark your response.

NOTE TO TEACHERS: PLEASE do not assist student in deriving responses about the statements. However, if a student has difficulty understanding a word and/or statement and its meaning, YOU could assist in clarifying the statement (e.g., use the word in another sentence for the student, or restate the statement). Upon the student’s completion of the survey, please have each student place the survey inside of the envelope provided. To ensure completion of all items in the instrument, YOU (the teacher) are allowed to examine the survey instruments. Thank you for following these directions.
General Directions:

These are a series of statements that measure attitudes toward general physical education class. There are no right or wrong responses. Circle the response that best describes your thoughts/feelings about each statement.

DO NOT SKIP ANY QUESTIONS.

CIRCLE ONLY ONE RESPONSE PER QUESTION.

ALL RESPONSES WILL BE KEPT CONFIDENTIAL.
This survey contains three sections as it relates to physical education and your attitude towards (peers, activities, and teacher). Please circle the response which best corresponds to your agreement with each statement.

KEY
SD = strongly disagree
MD = moderately disagree
SLD = slightly disagree
SLA = slightly agree
MA = moderately agree
SA = strongly agree

Do you have a physical disability?
a) YES b) NO

If you answered “YES” to the above question, what is the name of your disability? ____________________________________________

If you answered “NO” to the above question, please DO NOT complete this survey, return it to your instructor.

I. Attitude of individual with a disability towards other students in general physical education.

1. Most of the time, I enjoy playing with nondisabled students in my physical education class.

   SD    MD    SLD    SLA    MA    SA

2. I talk with most of the students in my physical education class.

   SD    MD    SLD    SLA    MA    SA

PLEASE CONTINUE ON NEXT PAGE
Response Key: SD = Strongly Disagree; MD = Moderately Disagree; SLD = Slightly Disagree; SLA = Slightly Agree; MA = Moderately Agree; SA = Strongly Agree

3. Most of my classmates in physical education make me feel like I am a part of the class.

   SD      MD      SLD      SLA      MA      SA

4. I do not want to be included with nondisabled classmates in the general physical education class.

   SD      MD      SLD      SLA      MA      SA

5. My classmates make me feel uncomfortable in the general physical education class.

   SD      MD      SLD      SLA      MA      SA

6. My classmates in my physical education class are too competitive for me.

   SD      MD      SLD      SLA      MA      SA

7. Overall, most of my classmates in my physical education class accept me as part of the class.

   SD      MD      SLD      SLA      MA      SA

8. Most of my classmates do not seem to mind making changes in the activities, so that I can play.

   SD      MD      SLD      SLA      MA      SA

PLEASE CONTINUE ON NEXT PAGE

153
II. Attitude of individual with a disability towards activities offered in general physical education class.

1. I enjoy playing in most activities in my physical education class.
   
   SD    MD    SLD    SLA    MA    SA

2. I can do well in most of the activities in my physical education class.
   
   SD    MD    SLD    SLA    MA    SA

3. Most activities that I participate in are with my classmates.
   
   SD    MD    SLD    SLA    MA    SA

4. I really like playing in group activities in my physical education class.
   
   SD    MD    SLD    SLA    MA    SA

5. I really like playing in individual activities in my physical education class.
   
   SD    MD    SLD    SLA    MA    SA

6. I often times watch other students play in activities in my physical education class.
   
   SD    MD    SLD    SLA    MA    SA

PLEASE CONTINUE ON NEXT PAGE
Response Key: SD = Strongly Disagree; MD = Moderately Disagree;
SLD = Slightly Disagree; SLA = Slightly Agree; MA =
Moderately Agree; SA = Strongly Agree

III. The attitude of individuals with a disability towards the teacher
in general physical education class.

1. My physical education teacher treats me as part of the class.
   SD MD SLD SLA MA SA

2. My physical education teacher includes me in most activities with my
classmates.
   SD MD SLD SLA MA SA

3. My physical education teacher’s expectations for me are the same as
   for the other students.
   SD MD SLD SLA MA SA

4. My physical education teacher does not talk to me.
   SD MD SLD SLA MA SA

5. My physical education teacher listens to my suggestions on ways to
   include me in activities.
   SD MD SLD SLA MA SA

6. My physical education teacher seems to know a lot about my
disability.
   SD MD SLD SLA MA SA

PLEASE CONTINUE ON NEXT PAGE

155
Response Key: SD = Strongly Disagree; MD = Moderately Disagree; SLD = Slightly Disagree; SLA = Slightly Agree; MA = Moderately Agree; SA = Strongly Agree

7. My physical education teacher makes successful changes to activities in order for me to be included.

     SD  MD  SLD  SLA  MA  SA

8. My physical education teacher picks on me in class.

     SD  MD  SLD  SLA  MA  SA

9. My physical education teacher makes helpful changes for most activities in my physical education class.

     SD  MD  SLD  SLA  MA  SA

IV. Demographic Information:

1. What is your gender? 1) Male 2) Female

2. What grade level are you? 

3. With which ethnic group are you identified?

   1) African-American  2) Asian/Pacific Islander
   3) White, Non-Hispanic  4) Hispanic, Non-White  5) Native-American
   6) Other: Please specify

4. What is your age? Please specify

PLEASE CONTINUE ON NEXT PAGE
5. Were you born with your disability? 1) Yes 2) No

6. If you responded “No” to question #5, how old were you when you became disabled? ________________________________

7. How long have you been playing in your physical education class with students without disabilities? Please indicate:
   1) _____ Days 2) _____ Months 3) _____ Years

8. Do you participate in regular physical activities? 1) Yes 2) No

9. If you responded “Yes” to question #8, what physical activities do you participate in, and how often? ________________________________

THANK YOU, YOU ARE FINISHED. PLEASE PLACE YOUR SURVEY IN THE ENVELOPE PROVIDED BY YOUR TEACHER.
General Directions:

These are a series of statements that measure attitudes toward general physical education class. There are no right or wrong responses. Circle the response that best describes your thoughts/feelings about each statement.

DO NOT SKIP ANY QUESTIONS.

CIRCLE ONLY ONE RESPONSE PER QUESTION.

ALL RESPONSES WILL BE KEPT CONFIDENTIAL.
This survey contains three sections as it relates to physical education and your attitude towards (peers, activities, and teacher). Please circle the response which best corresponds to your agreement with each statement.

**KEY**

SD = strongly disagree  
MD = moderately disagree  
SLD = slightly disagree  
SLA = slightly agree  
MA = moderately agree  
SA = strongly agree

Do you have a physical disability?

a) YES  b) NO

If you answered "YES" to the above question, what is the name of your disability? _______________________________________

If you answered "NO" to the above question, please DO NOT complete this survey, return it to your instructor.

I. Attitude of individual with a disability towards other students in general physical education.

1. Most of the time, I enjoy playing with nondisabled students in my physical education class.

   SD  MD  SLD  SLA  MA  SA

2. Most of my classmates in physical education make me feel like I am a part of the class.

   SD  MD  SLD  SLA  MA  SA

PLEASE CONTINUE ON NEXT PAGE
Response Key: SD = Strongly Disagree; MD = Moderately Disagree; SLD = Slightly Disagree; SLA = Slightly Agree; MA = Moderately Agree; SA = Strongly Agree

3. I do not want to be included with nondisabled classmates in the general physical education class.

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<th>MD</th>
<th>SLD</th>
<th>SLA</th>
<th>MA</th>
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</table>

4. My classmates make me feel uncomfortable in the general physical education class.

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<tr>
<th></th>
<th>SD</th>
<th>MD</th>
<th>SLD</th>
<th>SLA</th>
<th>MA</th>
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</tr>
</thead>
</table>

5. Overall, most of my classmates in my physical education class accept me as part of the class.

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<tr>
<th></th>
<th>SD</th>
<th>MD</th>
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<th>SLA</th>
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</table>

PLEASE CONTINUE ON NEXT PAGE
II. The attitude of individuals with a disability towards the teacher in general physical education class.

1. My physical education teacher includes me in most activities with my classmates.

   SD     MD     SLD     SLA     MA     SA

2. My physical education teacher’s expectations for me are the same as for the other students.

   SD     MD     SLD     SLA     MA     SA

3. My physical education teacher does not talk to me.

   SD     MD     SLD     SLA     MA     SA

4. My physical education teacher seems to know a lot about my disability.

   SD     MD     SLD     SLA     MA     SA

5. My physical education teacher makes successful changes to activities in order for me to be included.

   SD     MD     SLD     SLA     MA     SA
III. Demographic Information:

1. What is your gender? 1) Male  2) Female

2. What grade level are you? ________

3. With which ethnic group are you identified?
   1) African-American  2) Asian/Pacific Islander
   3) White, Non-Hispanic  4) Hispanic, Non-White  5) Native-American
   6) Other: Please specify____________________

4. What is your age? Please specify________

5. Were you born with your disability? 1) Yes  2) No

6. If you responded “No” to question #5, how old were you when you became disabled?______________________________________

7. How long have you been playing in your physical education class with students without disabilities? Please indicate:
   1)_____ Days  2)______ Months  3)______ Years

8. Do you participate in regular physical activities? 1) Yes  2) No

9. If you responded “Yes” to question #8, what physical activities do you participate in, and how often? __________________________

THANK YOU, YOU ARE FINISHED. PLEASE PLACE YOUR SURVEY IN THE ENVELOPE PROVIDED BY YOUR TEACHER
AN ANALYSIS OF STUDENTS WITH ORTHOPEDIC DISABILITIES ATTITUDES TOWARD GENERAL PHYSICAL EDUCATION

THE OHIO STATE UNIVERSITY

Physical Education Teacher Context Data

This short form specifically relates to information about you (the physical education teacher), and the context in which you teach physical education. Please completely respond to each question, and return this form in the envelop provided, along with completed surveys from your students.

I. Please read each of the following questions and respond accordingly.

1) What is your gender? (Circle one)
   1. Male 2. Female

2) How long have you been teaching physical education? Please specify.
   _______ Months _________ Days _________Years

3) Do you currently have a valid teaching certification in physical education? (Circle one)
   1. Yes 2. No

4) How many students are in your physical education class? Please specify?_______

5) Of the number of students in your physical education class (stated in # 4), how many of them have been identified as having a disability? Please specify. _______
   Of these, how many are orthopedically disabled?_________

6) Are there support personnel provided to assist you with your physical education class?
   1. Yes 2. No

THANK YOU FOR COMPLETING THIS DATA SHEET