The Effect of Coursework on Korean Pre-service Physical Education Teachers' Self-efficacy towards Inclusive Physical Education

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ABSTRACT

The purpose of this study was to explore and compare the effects of different types of Korean PETE programs (GPETE v. APETE) on the self-efficacy of pre-service physical education teachers. This study did sought to verify the effect of courses and of practica on self-efficacy toward inclusive physical education through survey research. Miltilevel modeling was employed for the purpose of this study. Data was collected using The Self-Efficacy Scale for Physical Education Teacher Education Majors toward Children with Disabilities (SE-PETE-D) and The Physical Educators' Self-Efficacy Toward Including Students With Disabilities–Autism (PESEISD-A). The sample size was 322 (GPETE: 90, APETE: 232).

Findings revealed that pre-service PE teachers in APETE programs had a higher mean self-efficacy score toward inclusive physical education compared to pre-service PE teachers studying in GPETE programs. Regarding the number of APE credits, the mean self-efficacy score of pre-service teachers who took more APE credits was significantly greater than that of pre-service teachers who took fewer APE credits. In terms of the effect of special education credits, findings from the present study revealed that the number of special education credits had a significant effect on the pre-service PE teachers' self-efficacy toward teaching students with disabilities in their GPE classes. Study findings also revealed that the amount of participation in campus-based practicums for teaching PE to students with disabilities had a significant positive effect on the self-efficacy of the participants. In contrast, participation in volunteer activities that can be

defined as a kind of field-based practicum related to physical activity or sports appeared to have no significant effect on participants' self-efficacy toward teaching students with disabilities in GPE classes. Regarding the scores for sources of self-efficacy, results showed that pre-service teachers who had higher scores for sources of self-efficacy also had a higher self-efficacy mean.

DEDICATION

To my father and mother

Who are the most supportive and selfless parents ever.

I could not have done it without you!

To all of my supportive family, friends and colleagues

Who inspire me each day.

I could feel your prayers across the miles!

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CHAPTER 1

INTRODUCTION

Korea has a long history of encouraging school districts to place students with disabilities into general education programs. Dating back to 1948, Article 16, Section II of the Korean Constitution states that all students with a disability will be eligible to receive the same opportunities to participate in general education as students without disabilities based on their ability (National Assembly of the Republic of Korea, 1948). The passage of the 1977 *Special Education Promotion Act* (SEPA) led to a significant increase in the number of students with disabilities participating in the Korean special education system. Specific terms governing inclusion in education were introduced in Korea by SEPA. In 2014, of the 87,278 students with disabilities in Korea, 61,451 (70.4%) were enrolled in the general school environment, with the remaining 25,827 (29.6%) enrolled in special schools or special education support centers (Ministry of Education, 2014). The number of students with disabilities enrolled in special or general classes in the nation's general schools had gradually increased every year for the previous five years (Ministry of Education, 2014). Table 1 shows the numbers of students with disabilities attending both general and special schools for the five years from 2010 to 2014 (Ministry of Education, 2014).

This philosophy of inclusion has also been associated with physical education classes in Korea during the past few decades (Park, 2002) and a number of researchers have argued the necessity of inclusive physical education (Kim, Jung & Lee, 2012; Lee,

2009). According to Lee (2009), inclusive physical education helps students with disabilities overcome their disabilities and develop better relationships with their peers without disabilities. Furthermore, both students with and without disabilities can learn how to develop their social inclusion skills as well as their motor skills by participating alongside each other in general physical education (GPE) classes (Kim et al, 2012; Lee, 2009).

Table 1

The Percentage of Students with Disabilities in Korea from 2010 to 2014 (Ministry of Education, 2014)

Year	Special School or Special Education Support Center	General Schools	Total
2010	23,944 (30%)	55,767 (70.0)	79,711 (100)
2011	24,741 (29.9)	57,924 (70.1)	82.665 (100)
2012	24,932 (29.3)	60,080 (70.7)	85,012 (100)
2013	25,522 (29.5)	61,111 (70.5)	86,633 (100)
2014	25,827 (29.6)	61,451 (70.4)	87,278 (100)

Even though the percentage of students with disabilities in general education schools has increased, research suggests that Korean physical education teachers still exhibit some negative attitudes toward teaching with students with disabilities in GPE classes (Jeong & Block, 2011; Oh & Lee, 1999; Roh, 2002; Roh & Oh, 2005). According to Roh (2002), physical education teachers did not have a positive attitude and had low levels of self-confidence toward teaching students with disabilities in GPE because of their lack of training and teaching experience. Furthermore, Jeong and Block (2011)

found that approximately 50% of GPE teachers in Korea reported excluding students with disabilities from their GPE classes. Similar to Roh's study, Jeong & Block asserted that GPE teachers needed more coursework and teaching experience to develop the skills needed to successfully include students with disabilities in their classes.

Research on the attitudes of GPE teachers in the United States and Europe have found similar neutral to negative attitudes towards including students with disabilities in GPE. For the most part negative attitudes, perspectives and beliefs towards teaching students with disabilities in GPE classes are common, largely because of a lack of preparatory coursework and professional training, teaching experience, support, and confidence in their ability to make appropriate accommodations and modifications (Ammah & Hodge, 2006; Hardin, 2005; Hersman & Hodge, 2010; Hodge et al., 2009; Hutzler, Zach, & Gafni, 2005, Vickerman & Coates, 2009). For example, Hersman and Hodge (2010) examined general physical education teachers' beliefs about teaching students with disabilities in inclusion classes, focusing on five general physical education teachers in a large urban school district. These teachers mentioned that pedagogical issues made them uncomfortable teaching students with disabilities in inclusive physical education.

Several studies have found that major factors affecting GPE teachers' positive attitudes and improved perceived confidence toward teaching students with disabilities include a perceived lack of appropriate coursework for teaching students with disabilities (e.g., special education, adapted physical education and other theoretical and practice courses) and training in physical education teacher education (PETE) programs and in-service professional workshops (Block, Taliaferro, Harris, & Krause, 2010; Coates, 2012;

Combs, Elliott, & Whipple, 2010; Crawford, O'Reilly, & Flanagan, 2012; Elliott, 2008; Hersman & Hodge, 2010; Hodge & Elliott, 2013; Hodge et al, 2009; Hutzler et al, 2005; Mangope, Mannathoko, & Kuyini, 2013; Meegan & McPhail, 2006; Morley, Bailey, Tan & Cooke, 2005; Vickerman & Coates, 2009). In particular, Vickerman & Coates (2009) found that GPE teachers felt they needed to be provided with preparatory education for teaching students with disabilities in PETE programs, and they emphasized the need for a balanced curriculum that included both theoretical and practical courses related to teaching students with disabilities. Combs et al. (2010) reported that GPE teachers who had more positive attitudes were more likely to have taken special education courses during their PETE program. According to Elliott (2008) and Hersman & Hodge (2010), teachers' practice and opportunities to teach students with disabilities during training, both of which are known to support the development of positive attitudes, are also major factors that can improve teachers' level of confidence. Similarly, physical education teachers' positive beliefs towards inclusive physical education depend on their level of perceived competence. For example, Obrusnikova (2008) found that physical educators' positive beliefs toward inclusive physical education depended on their perceived competence, positive teaching experience with children with disabilities, and coursework in adapted physical education.

Unfortunately, little research has been conducted to examine the relationship between PETE program content and confidence regarding inclusive physical education. Although Taliaferro, Hammond and Wyant (2015) looked at the effect of adapted physical education courses of PETE program on pre-service teachers' self-efficacy toward

inclusive physical education, the number of courses involved were few (N=2) and limited to adapted physical education and an on-campus practicum.

Self-Efficacy Theory

While research suggests perceived confidence can influence physical education teachers' attitude, perspective and belief toward working with students with disabilities in GPE classes (Combs et al, 2010; Elliott, 2008; Hersman & Hodge, 2010; Vickerman & Coates, 2009), there has been a lack of research into the links between perceived confidence and the coursework student teachers are offered. A useful framework for understanding and measuring perceived confidence is provided by Bandura's self-efficacy theory (Bandura, 1977). Bandura defined self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (1997, p.3). Basically, self-efficacy is a task-specific and situational-specific form of self-confidence. Bandura (1986) suggested that four sources affect self-efficacy: (a) mastery experience, which is the individual's past experience of a particular task; (b) vicarious experience, which is related to the successful performances of others, such as friends or colleagues; (c) social persuasion, which consists of others' feedback; and (d) physiological states, which can include strong emotional reactions such as stress fatigue and anxiety.

Mastery experience is seen as a particularly powerful source for self-efficacy. It is also perceived as an individual’s understanding of his/her own previous and legitimate experiences during the performance of a particular task. According to Bandura (1997), for those who are yet to develop a firm sense of efficacy a successful mastery experience has the capacity to increase an individual’s personal efficacy, whereas an unsuccessful

experience would decrease their efficacy. In terms of PETE training, pre-service PE teachers who have successful experiences in teaching students with disabilities in GPE classes during PETE programs are likely to have higher levels of self-efficacy toward including students with disabilities in physical education compared to those pre-service PE teachers without such successful experiences.

The second most powerful source of self-efficacy is *vicarious experience*. This involves an individual estimating their own capabilities based on the performances achieved by others. To apply this source to PETE program, pre-service PE teachers can gain a higher level of self-efficacy if they are exposed to educational materials such as videos, handouts, and textbooks in classes related to teaching students with disabilities (e.g., APE or special education). Furthermore, observation of GPE classes that successfully include students with disabilities is also expected to improve self-efficacy. Kwon (2014) confirmed this to some extent when she found pre-service PE teachers who watched videos of GPE teachers successfully accommodating students with disabilities as part of an online module showed improved self-efficacy towards their ability to include students with disabilities in GPE compared to a control group.

The third source of self-efficacy is *verbal or social persuasion*. Bandura (1986) considered that verbal persuasion can "contribute to successful performance if the heightened appraisal is within realistic bounds." (p. 400). In PETE programs that include practical experiences, instructors can provide positive feedback to students in an effort to convince them that they can teach students with disabilities in GPE classes. Finally, *emotional and physiological states* like aches and pains, different moods and fatigue are also thought to have a substantial impact on beliefs concerning self-efficacy. Strong

emotional reactions have the capacity to provide clues related to expected failure or success. For example, anxiety and stress toward inclusive physical education can be a negative variable that detracts from pre-service PE teachers' self-efficacy. Research into sources of self-efficacy is thus very relevant and a good way to gain a clearer view of how physical education teachers have constructed their beliefs on self-efficacy regarding the inclusion of students with disabilities in their classes. Although a high level of self-efficacy improves GPE teachers' ability to teach physical education related to content and motor skills, a lack of self-efficacy tends to decrease their ability to teach students with disabilities in their GPE class (Block et al., 2010).

Bandura suggested that an individual's level of self-efficacy directly influences his or her behaviors when approaching specific tasks, goals and challenges. According to Bandura (1994), "People's level of motivations, affective states and actions are based more on what they believe than on what is objectively true" (p. 2). Supporting this theory, Pajares (2002) argues that two people with similar abilities may perform very differently due to their respective levels of self-efficacy. Furthermore, self-efficacy levels influence an individual's magnitude of adherence to specific goals and persistence while trying to achieve those goals (Gurvitch & Metzler, 2008). This suggests that physical education teachers are influenced by their level of belief in their own self-efficacy while working with students with disabilities in their GPE classes. It has been argued that physical education teachers who have a high level of self-efficacy are more likely to attempt difficult tasks such as including students with disabilities and put forth more effort and persevere longer at those tasks, thus making them more likely to successfully perform the activity than are individuals with low self-efficacy (Block et al., 2010).

Self-efficacy theory has been applied in research into inclusion in general as well as special education (Armor et al., 1976; Ashton & Webb, 1986; Buell, Hallam, Gamel-McCormick & Scheer, 1999; Lancaster & Bain, 2007; Roll-Peterson, 2008; Soodak & Podell, 1993; Woolfolk, Hoy, & Davis, 2006), but only a few studies have utilized this model with physical education teachers and children with disabilities. The first use of self-efficacy theory in adapted physical education was a study by Hutzler et al. in 2005. Since then, most research in this area has focused on the development of inservice teachers' self-efficacy. For example, Taliaferro and Harris (2014) investigated the effects of a one-day (approximately six-hour) workshop on general physical educators' self-efficacy in a study on including students with autism in general physical education classes. Here the participants were 38 general physical education teachers taking part in a one-day workshop as the treatment group, and 27 general physical education teachers who did not participate in the workshop as the control group. Their results showed that the time effect between pretest and posttest increased the scores of general physical educators' self-efficacy related to including students with autism in the general physical education setting. However, the effect of the workshop alone did not have a significant impact on the general physical educators' self-efficacy in this regard.

Given this lack of previous research into the impact of teaching self-efficacy and coursework in PETE programs, many questions remain unanswered. How can PETE programs improve self-efficacy of pre-service physical educators toward working with students with disabilities in GPE? What barriers must be overcome when pre-service physical education teachers are faced with students with disabilities? How does coursework affect perceived competence? Does a campus-based practicum or student

teaching experience affect perceived competence toward teaching students with disabilities in GPE? Does a course that specifically focuses on teaching students with disabilities such as special education and adapted physical education affect self-efficacy toward teaching students with disabilities in GPE? In order to address these questions, the effect of the courses offered in PETE programs on pre-service teachers' self-efficacy must be investigated.

The Adapted Physical Education Teacher Education (APETE) Program in Korea

In Korea, education and training programs for physical education teachers begin at the undergraduate level. This program is largely divided into two types of department: APETE programs and general physical education teacher education progrmas (GPETE), with different courses being provided depending on the goals of the programs. In APETE programs, undergraduate students are required to take GPE courses and APE courses in addition to regular educational courses such as special education courses and practicums (Cho, 2003; Jeoung & Hong, 2003; Park, Beak & Kim, 2013). In the departments that offer GPETE programs, the focus is on GPE courses, physical activity, recreation and sports rather than APE and special education settings, because the main goal of this program is to train physical education teachers for general schools like PETE programs in the U.S.

Pre-service teachers enrolled in the APETE program in Korea are required to take classes in five academic areas: APE, theories of kinesiology, professional teaching topics such as educational psychology and introduction to education, special education, and student teaching. After graduating from their four-year undergraduate teacher education

programs, they will be employed as special education teachers who are qualified to teach physical education in special classes in either general schools or special schools. The Korean Ministry of Education, Science and Technology (Ministry of Education, 2013) requires pre-service APE teachers to complete a minimum of 102 credit hours to become eligible to serve as level 2 special education teachers. This is made up of 42 credits of special education, 22 credits of professional teaching topics, and 38 credits of GPE and APE (Park et al., 2013). Pre-service PE teachers enrolled in APETE progrmas can select from a number of courses offered by the programs. Regardless of the minimum requirements specified by the Korean Ministry of Education, students are also expected to complete extra credits in sports skills and performance and a campus-based practicum if they are to graduate from an APETE program. Student teaching experience is also required to earn a teacher certification and all of the students must pass a practicum class in their senior year (Korea Ministry of Education, 2013). This teaching practicum occurs in special schools. During this practice, senior students are expected to be in charge of a class, acting as a homeroom teacher under the supervision of an in-service teacher for 4 weeks, and they are also expected to teach several physical education classes. To complete this practicum successfully, the pre-service teachers must develop their own program plan, classroom management plan, and counseling plan. Furthermore, they also have to learn how to apply educational law related to school administration and management (Ministry of Education, 2013).

However, most general physical educators in Korea have not received sufficient training in APE and special education and practicum in their PETE programs. Roh (2002) conducted a survey targetting Korean in-service physical education teachers. The purpose

of this research was to explore the current status of inclusive physical education in Korea. 46The study's findings revealed that 85% of the students with disabilities in general schools were not fully included or were excluded from general physical education classes. In addition, approximately 30% of Korean physical education teachers did not believe students with disabilities should participate in class activities. Roh also showed that physical education teachers allowed students with disabilities to stay in their classroom during physical education times, which was confirmed by Jeong & Block (2011). One interesting finding in this research was that most physical educators had limited opportunities to access training or gain experience teaching students with disabilities. Unfortunately, Roh (2002) did not directly measure attitudes or self-effacy towards including students with disabilities into GPE or the relationship betweeen training and experience on attitudes and self-efficacy.

In sum, it is important for Korean pre-service PE teachers to receive appropriate training that will equip them to teach students with disabilities in their PETE programs. This training could allow Korean PE teachers to successfully manage inclusion classes in physical education due to their more positive attitudes and higher levels of self-efficacy. However, there has been no research in Korea verifying the effects of the coursework and practicums offered by APETE programs on pre-service general physical education teachers' self-efficacy toward inclusion in physical education. Therefore, the research proposed here to verify the effect, if any, of coursework will be a first attempt to develop a better understanding of the relationship between coursework and practical experience on the self-efficacy of pre-service physical education teachers in Korea.

Statement of the Problem

Seventy percent of the students with disabilities in Korea are now enrolled in the general school environment and the number of students with disabilities who are enrolled in special or general classes in the general school continues to increase. The philosophy of inclusion that has been a part of special education law in Korea for over 50 years has direct application to including children with disabilities in general physical education programs. However, the few studies that have been conducted in Korea in this area reveal that GPE teachers suffer from generally low levels of self-confidence and feel uncomfortable when asked to teach students with disabilities in GPE classes because of their lack of training and teaching experience (Oh & Lee, 1999; Roh, 2002; Roh & Oh, 2005). Therefore, it is important that the PETE programs offered by Korean universities help pre-service teachers acquire the knowledge and teaching skills they need to teach students with disabilities successfully by providing proper preparation courses (Coates, 2012; Hodge & Elliott, 2013; Mangope et al., 2013; Martin & Kudlacek, 2010; Vickerman & Coates, 2009). Efforts to design better coursework to improve pre-service teachers' self-efficacy for inclusion has been the subject of research in both general and special education for some years (Burton & Pac, 2009; Carroll, Forlin & Jobling, 2003; Lambe, 2007; Lancaster & Bain, 2007; Palmer, 2006). In adapted physical education, however, there is a lack of research into pre-service teacher's self-efficacy regarding inclusion settings. In particular, no research in Korea has been conducted into how the type of courses related to teaching students with disabilities (e.g., special education) and the type of practicum (e.g., campus-based or volunteer experiences) impacts pre-service teachers' self-efficacy toward teaching students with disabilities in PETE programs.

Therefore, research that investigates the effects of specific types of coursework in order to determine the best way to support the improvement of pre-service teachers' self-efficacy toward inclusive physical education would clearly contribute to developing more effective preparation courses for inclusive physical education inKorean PETE programs.

Purpose of the Study

The purpose of this study is to explore and compare the effects of different types of Korean PETE programs (APETE: adapted physical education teacher education v GPETE: general physical education teacher education) on the self-efficacy of pre-service physical education teachers. In particular, this study will analyze (a) the effect of different courses, namely special education and adapted physical education on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; (b) the relationship between the number of credits of each type of course taken and the Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; (c) the effect of campus-based practicums and volunteer experiences on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; and, (d) the relationship between sources of self-efficacy and the Korean pre-service physical education teachers' self-efficacy toward inclusive physical education.

Overview of Research Questions

Based on the over-arching purpose of this study stated above, the research questions developed to guide this study are as follows:

RQ1: Is there an effect due to the type of program selected by institutes (APETE program: adapted physical education teacher education and GPETE program:

general physical education teacher education) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

Sub RQ 1.1: If yes, does the number of adapted physical education and/or special education credits taken influence the level of individual pre-service physical educators' self-efficacy toward inclusive physical education?

H_0: There is no statistically significant relationship between the number of such classes taken and pre-service physical educators' self-efficacy.

RQ 2: What type of curriculum is more effective in maximizing the effect of an APE credits on pre-service physical educators' self-efficacy toward inclusive physical education in both curriculums?

H_0: There is no statistically significant relationship between the types of curriculum for pre-service teachers' self-efficacy toward inclusive physical education.

RQ3: Is there an effect of each type of practicum (campus-based practicum and volunteer experience) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

H_0: Self-efficacy is not influenced by the relationship between practicum and self-efficacy.

RQ 4: Do sources of self-efficacy influence self-efficacy scores toward inclusive physical education in pre-service teachers?

H_0: There is no statistically significant relationship between sources of self-efficacy and self-efficacy scores toward inclusive physical education in pre-service teachers.

Sub RQ 4.1: If yes, is there an effect due to the type of program - APETE programs versus GPETE - on pre-service physical education teachers' sources of self-efficacy toward teaching students with disabilities in general physical education classes?

H_0: There is no statistically significant relationship between the types of program for pre-service teachers' self-efficacy toward inclusive physical education.

Definition of Terms

Within the context of this study, the terms used are defined as follows:

Adapted physical education. Adapted physical education is physical education for the person with a disability as it is for a person without a disability.

Campus-based practicum. The practicum strategy used by teacher education programs to provide teaching demonstrations and practice for pre-service teachers under the guidance of university faculty and staff (Fraser, 2007).

Course. A unit of teaching that is led by teachers or professors

Coursework. The work that students or trainees are expected to complete for the purpose of learning.

Inclusion. A philosophy in which students with disabilities receive an appropriate, individually determined physical education program within the general physical education setting alongside students without disabilities (Block, 2007).

Inclusive Physical Education. The practice of teaching students with disabilities in physical education classes alongside students without disabilities instead of in separate classes with other students with disabilities (Block, 2007).

Pre-service physical education teacher. Pre-service physical education teachers are undergraduate students who are enrolled in physical education teacher education (PETE) programs in university or college.

Self-efficacy. "Belief in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3).

Self-efficacy theory. A theory that describes self-efficacy beliefs as influencing an individual's behaviors, thoughts, and actions (Bandura, 1997).

Sources of self-efficacy. Four sources of self-efficacy influence and strengthen an individual's self-efficacy beliefs: mastery experiences, vicarious experiences, social persuasion, and physiological states (Bandura, 1977, 1994, 1997).

Special education. Educating students with special needs. Special education includes developing individualized education plans and systematically monitoring the arrangement of teaching procedures, adapting equipment and materials, and providing accessible settings.

Delimitations

The study is delimited in the following areas:

1. Only current undergraduate students who are majoring in adapted physical education at seven universities in Korea will be included in this study.
2. Only undergraduate students who volunteer and who: (a) return consent forms and (b) complete the Situational Specific Self-Efficacy Instrument for Physical Education Teacher Education Majors scale (SE-PETE-D) survey, the Physical Educators' Self-Efficacy Toward Including Students With Disabilities–Autism (PESEISD-A), and demographic survey will be included in this study.

3. Only the self-efficacy of undergraduate students who major adapted physical education will be addressed in this study.

Limitations

1. The participants may not be a representative sample of the population. Because all the participants who volunteer for this study will be recruited in Korea, diverse cultural and regional backgrounds are not considered.
2. Participants in the study may already have higher levels of self-efficacy toward teaching students with disabilities.
3. This study only explores the effect of the type of course included in the APETE and GPETE program. Therefore, the effect of individual units (e.g., physical education for severe disabilities) on participants' self-efficacy toward inclusive physical education cannot be assumed.
4. The findings of this study will be specific to current undergraduate students who are majoring in APE and GPE in Korea. Therefore, the findings may not be generalizable to other countries and to current in-service teachers.
5. The findings of this study will be applicable only to inclusive physical education in a school environment and therefore may not be generalizable to field-based sports or physical activities.

CHAPTER2

REVIEW OF THE LITERATURE

This study will use a quantitative-methods approach to examine the effect of PETE courses and types of practicum on the way pre-service teachers approach teaching students with disabilities in general physical education (GPE) classes. The objective is to determine the influence of coursework and practicums on the self-efficacy of pre-service physical education teachers towards inclusion. This chapter presents the results of this review by focusing in turn on: (a) the theoretical framework for this research, (b) APETE programs in Korea, and (c) pre- and in-service physical education teachers' attitudes and self-efficacy toward inclusion physical education. The importance of self-efficacy in these areas will then be summarized, and potentially useful directions for future research in this area identified.

Theoretical framework

A major objective of this study is to identify ways of building pre-service physical education teachers' self-efficacy toward working with students with disabilities in GPE. Self-efficacy is perceived as a situational form of self-confidence (Bandura, 1997).

The majority of physical education teachers are known to possess or exhibit confidence during teaching sessions with students on fitness, health concepts, sport and skills (Piletic& Davis, 2010). However, self-confidence is highly vulnerable and likely to decline if circumstances change in unanticipated ways, for example by being faced with the challenge of teaching students with disabilities in a general physical education class.

In most undergraduate physical education teacher education programs, pre-service physical education teachers are only required to take a single adapted physical education class and so have no substantial teaching experience in the field. Given the steady progression towards including students with more significant physical disabilities in physical education classes, this poses a major challenge for teachers. Self-confidence is closely related to achieving any form of success (Bandura, 1997), so it is critical to find a way to increase the self-confidence of physical education teachers if they are to be capable of successfully including students with disabilities in their classes. It is therefore useful to focus on Bandura's social cognitive theory, which includes the concept of self-efficacy.

Bandura's social cognitive theory incorporates many of the concepts involved in self-efficacy. Human functioning and success are explained by Bandura's social cognitive theory as arising as a result of the bidirectional interactions between multiple factors related to environmental, behavioral, and personal influences. For example, Stajkovic and Luthans (1998) examined the relationship between self-efficacy and human functioning associated with work related performance through a large meta-analysis (N=114). Their findings revealed that improving self-efficacy could result in increases as high as 28% in work-related performance. Other factors had lesser impacts: the same study found that organizational behavior modification led to a 17% increase, while feedback intervention and goal setting increased by 13.6% and 10.9%, respectively.

The theory describes a number of different aspects of social cognitive theory that play significant roles in functioning and success, including three important competencies: mastery modeling, self-regulation and setting of goals, just as in personal motivation and

perceived self-efficacy. Although Bandura places a great deal of weight on these three competencies, there is also a significant focus on perceived efficacy with respect to social cognitive theory (Bandura, 1988).

Mastering modeling involves a three-step process for the achievement of competency and success, as well as for the improvement of personal performance. Initially, the skills to be taught are designed by an individual with the expertise and knowledge required for the achievement of success in a particular skill. In the next step, the learner completes the tasks or skills assigned under the supervision of a tutor who guides the performance of the activities and serves as a mentor for the learner to look up to, follow, address queries to, and interact with whenever needed. Finally, the student performs the activities in a different setting, which allows him or her to practice and apply the elements learned and the skills and knowledge acquired. Learners are thus enabled to acquire new skills and competencies since the setting is specifically designed to enforce whatever is learned (Bandura, 1988). In PETE programs, student teaching is an example of a good practicum that will enable pre-service teachers to apply the academic knowledge and skills that they have learned prior to entering a real teaching environment. Pre-service physical education teachers can thus acquire competency by synthesizing their academic knowledge and teaching skills.

Additional components of Bandura's social cognitive theory include goal setting and self-regulation, both of which relate to self-motivation. People often need to spend time learning different tasks that may not be immediately useful or which seem to be applicable too far in the future. The idea of setting goals and achieving desired outcomes is explored extensively by Bandura, who notes that different tasks and goals are likely to

influence an individual in distinctly different ways with respect to the task. He also touches on the motivational aspect of goal setting, where a learner has the responsibility of making sure they possess the desire to develop the skill at hand or a strong dedication towards achieving a set of goals and dreams. Otherwise, it does not make sense for a learner to strive for success without any future implications regarding the competencies achieved in the skills being developed (Bandura, 1988).

As noted above, perceived self-efficacy is a fundamental characteristic of social cognitive theory: “Success requires not only skills but also strong self-belief in one’s capabilities to exercise control over events to accomplish desired goals” (Bandura, 1986, p. 279). It is also essential for individuals possessing specific skills and abilities related to the performance of a task to understand that their overall performance may vary greatly. Individuals with equal skills may exhibit performances that are excellent, mediocre or even poor, depending on their belief in their ability to tackle the task. Bandura began to develop the concept of self-efficacy, which he defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Self-efficacy represents a situation-specific form of self-confidence of an individual’s belief in their ability to perform particular skills or behaviors. For example, general physical education teachers tend to have a low level of self-efficacy when they teach students with disabilities in a GPE class even though they have a high level of self-efficacy in their ability to teach physical education related content and motor skills (Block, et al., 2010).

As the above description demonstrates, Bandura’s social cognitive theory suggests that efficacy and outcome expectations are likely to be strongly affected by

motivation and how an individual perceives their own abilities (Bandura, 1986, 1997). This means that an individual is only as capable of performing a task as they perceive themselves to be. This also means that the performance of a task can only be achieved as well as an individual desires.

Bandura (1997) suggested self-efficacy could be used in place of confidence on occasion. Confidence refers to an individual's perceptions of their self-abilities, but this decision is not made by the individual as a result of any specific task (Pajares, 2002). To support this theory, Pajares (2002) argues that two people with similar abilities may perform very differently due to their respective levels of self-efficacy. Furthermore, self-efficacy levels influence an individual's magnitude of adherence to specific goals and the persistence they exhibit in trying to achieve those goals (Gurvitch & Metzler, 2008). This indicates that physical education teachers are influenced by their level of self-efficacy belief while working with students with disabilities in their GPE classes. It has been suggested that physical education teachers who have a high level of self-efficacy are more likely to attempt difficult tasks, put forth more effort and persevere longer at those tasks, and successfully perform the activity than are otherwise similar individuals with low self-efficacy (Block et al, 2010).

Therefore, self-efficacy can be perceived as an individual's perceptions or personal judgment involving the performance of a specific task or behavior. An individual's thoughts on their own task specific skills, development of self-efficacy and different abilities are likely to be related to the various types of predetermined goals they have set themselves (Bandura, 1994; Pajares, 2002). In conclusion, self-efficacy is likely

to reflect what individuals do with the skills and knowledge they have acquired in different environments, and whether they deem the results to represent failure or success.

Self-efficacy is likely to be affected by a number of different factors, including how an individual views specific tasks. A person is more likely to influence self-efficacy, either directly or indirectly, through the behaviors or choices that are exhibited. For instance, an individual possessing high efficacy in motor skills performance may choose to become a physical education teacher, while another with low self-efficacy in their performance of motor skills may instead opt for a career that is as far from being physically active as possible. These types of perceived feelings and abilities also have the capacity to affect the amount of effort and persistence an individual displays during certain situations (Bandura, 2006). Pajares (2002) observed that the moment individuals realize their self-efficacy in specific tasks, they make a choice to be involved in activities where they have a higher chance for success. Conversely, individuals stay away from tasks and situations where their chances of success seem low. High levels of success are closely linked to high levels of motivation, engagement in challenging tasks, having big dreams and goals and persevering in the pursuit of those dreams and goals. In contrast, individuals with low self-efficacy have a high capacity to avoid such tasks. This may mean that individuals possessing identical amounts or levels of performance of a certain skill are likely to perform differently in certain tasks depending on their level of efficacy in the field. For instance, GPE teachers who are known to possess low self-efficacy with respect to the inclusion of students with disabilities in their general physical education classes have been observed to highly avoid such situations, while GPE teachers possessing a high self-efficacy towards the inclusion of students with disabilities in their

general physical education classes appear to be more motivated and energetic in these situations.

It is necessary for individuals to focus on self-efficacy as an attribute since maintaining it at a high level for everyday tasks significantly improves the overall quality of life. “A strong sense of efficacy enhances human accomplishment and personal well-being in many ways” (Bandura, 1994, p. 2). Bandura argues that individuals possessing a high level of self-efficacy look upon challenging tasks in their worlds with a more positive attitude and regard conquering them as a necessity. This is essential for self-improvement, rather than simply turning away from challenging tasks.

The theory of self-efficacy is included in Bandura’s social cognitive theory, which identifies other influential sources that may affect self-efficacy in different individuals. Specifically, four sources are presented which contribute to an individual’s high levels of self-efficacy: physiological states, social persuasion, vicarious experiences and mastery experiences. Bandura (1997) explains that the four sources of self-efficacy have the capacity to interact with other factors existing within the same environment, including situational, social and personal factors, all of which play a role in the establishment, determination and prediction of an individual’s level of self-efficacy. These are discussed in more detail below with respect to the most and least effective predictors of self-efficacy.

Mastery experiences. The strongest indicators and most effective approaches to the development of a strong sense of self efficacy are developed through mastery experiences. This approach offers a setting that is appropriate for individuals to master and perform different tasks. The settings are logically arranged to be legitimate in nature.

This translates to an improved self-efficacy in an individual's ability to successfully complete the task again in the future; the ability to complete a task a number of times provides the individual with an improved sense of self efficacy or perceived ability to perform the task. However, it is essential to consider the converse of the situation since it is equally applicable: if an individual happens to experience repeated failures of a task in similar situations there is a likelihood that low self-efficacy will ensue leading to the individual not trusting their ability to successfully complete the task in the future. General physical educators and the inclusion of students with disabilities in their usual physical education classes is a good real life example of this conundrum. However, in cases where the general physical education teacher undergoes successful experiences which include the development of adaptations and modifications to ease the problems related to including students with disabilities in their classes, there is a high probability that they will develop a positive attitude towards the session and hence gain high self-efficacy in this area. On the other hand, if a teacher has a poor experience when dealing with students with disabilities in their general physical education class, they are likely to feel reluctant to include them in the next session due to a feeling of low efficacy in the field. In order for this experience to be authentic, it is important to give the individual the opportunity to process and reflect upon prior experiences (Bandura, 1986, 1994). This means that if the task presented was easy and the individual happened to be successful, it may not have a substantial effect on future self-efficacy due to the lack of an appropriate cognitive process.

Vicarious experiences. Social models provide vicarious experiences which are perceived as the second most powerful sources of self-efficacy (Bandura, 1994). Here,

the individual is able to compare their own abilities to the performances of other people through social models such as peers, authoritative figures and colleagues. This concept is to some extent similar to mastery experiences, although mastery experiences are acted out by the individual, while in vicarious experiences another individual acts out the experience while the learner lives through them as they observe. The individuals are left with the task of assessing whether it is possible for them to do what their peer did. For instance, a person may claim that they are sure they will be able to perform a certain task because they just watched a peer do the same task; a statement such as 'So if someone I know does the task, then I can do it better' suggests the capability of increasing self-efficacy. However, the opposite is also likely to happen and genuinely apply. For instance if an individual watches their peer fail to perform as required in a specific task, they may conclude that they will also fail if they try to do the same task since their peer failed. Reflecting on the situation of including students with disabilities in a general physical education class, another person will see how their colleague is performing with the students with disabilities; a successful outcome may enhance the observer's self-efficacy or perceived competence for the achievement of similar modifications and thus achieving similar successes.

Verbal or social persuasion. The third source of self-efficacy is social persuasion, which is also referred to as verbal persuasion (Bandura, 1986). This includes receiving support, encouragement and motivation from colleagues, peers and other individuals. This can serve a major purpose in informing the individual of how well they are performing at a specific task in addition to the provision of appropriate resources. For example a teacher may be provided with a number of resources that would allow them to

include the students with disabilities and encouraged to try using them in their classroom. Bandura (1994) considers this to be one of the most easily undermined and compromised approaches related to self-efficacy, arguing that negative social persuasion is likely to affect the individual to a greater extent than the positive experiences of social persuasion; individuals who are convinced that they lack certain capabilities in the performance of tasks will tend to avoid these activities and be more likely to give up on challenging tasks (Bandura, 1994, p. 3). Finally, dealing with social persuasion aspects of self-efficacy should involve a consideration of where the information or critics originate from and analyze whether the individual is actually reliable, honest, credible, trustworthy and knowledgeable with regard to that specific task. A valid or respected individual is essential for such persuasion to be useful, otherwise the feedback deserves to be dismissed out of hand, although this often proves difficult for those experiencing this form of self-efficacy.

Emotional and physiological states. Finally, physiological and emotional states are also important sources of self-efficacy. Bandura (1994) explains that these factors relate to how our bodies are feeling such as aches and pains, stress, fatigue, mood and anxiety, suggesting that all these factors have the capacity to impact self-efficacy beliefs through the information they convey to the body. Strong emotional reactions provide cues to signal expected failure or success in performing a specific task. For instance, a general physical education teacher may feel nervous and anxious whenever a new student joins their class who has a disability and their body may interpret these reactions as an inability to successfully include the student in the general physical education class. On the other hand, if they remain relaxed and calm, their body interprets this as the

expectation of probable success in the task, supporting their efforts to involve students with disability in the session. Self-efficacy is perceived to improve with performance where treatments that eliminate emotional arousal are implemented.

It is essential to investigate the sources of self-efficacy in order to better understand how physical education teachers can establish a firm belief in their self-efficacy related to including students with disabilities in their general physical education classes. These sources play a major role in supporting the development of strategies for incrementally boosting self-efficacy. Bandura's self-efficacy theory explains that performance and motivation in an individual are determined by their perceived ability and efficacy motivation. Individuals are only capable of performing a task as well as they think they can, but they can also be helped to perform it in a better way based on their perceptions of the task. Although a serious limitation is that it is known to be predictive of behavior during major challenges, its influence has been shown to decrease when the task becomes habitual or well learned.

Self-Efficacy in Teacher Education Programs

In the area of teacher education, research has examined the effect of participation in coursework and field experience on the confidence level of pre-service teachers (Busch, Pederson, Espin, & Weissenberger, 2001; Goddard & Foster, 2001; Hebert & Worthy, 2001; Sofo, 2008; Yost, Forlenza-Bailey, & Shaw, 1999; Yost, 2006). The findings from these studies are unanimous in declaring that pre-service teachers gain higher confidence levels, thus positively influencing their self-efficacy, through more successful experience during courses and field experience. Furthermore, according to Hoy &Woolfolk (1990) and Plourde (2002), pre-service teachers' high levels ofteaching

efficacy accompanied more successful participation in coursework and the student teaching experience.

To illustrate the effect of coursework, Sofo (2008) examined determinants of pre-service classroom teachers' (PCTs) intent to include movement and academic concepts during the first year of teaching through self-efficacy theory and theory of planned behaviors. Researchers recruited 67 junior year PCTs and gathered demographic data included gender, ethnicity, and educational fields (i.e. elementary, special education, early childhood). Participants were learning how to integrate the arts in an elementary school curriculum through a methods course lasting three semesters. During the methods course, they learned how to develop lesson plans and perform a group dance. This qualitative research study asked participants open-ended questions at the end of the course to assess their planned intentions to integrate the arts into their own classrooms, identifying six major themes in the responses: attitude, subjective norm, perceived behavioral control, self-efficacy, social support, and subject preferences. In particular, the findings regarding self-efficacy indicated that most participants felt improved self-efficacy when they included the arts during their first year teaching after taking the methods course, indicating that suitable teacher education courses can indeed have a positive effect on a PCT's self-efficacy for including the arts in their classroom.

As discussed above, appropriate coursework and teaching experience in teacher education programs improves pre-service teachers' self-efficacy (Busch et al., 2001; Goddard & Foster, 2001; Hebert & Worthy, 2001; Sofo, 2008; Yost et al., 1999; Yost, 2006). It also suggests that teacher education programs should provide novice teachers with opportunities to acquirehigher levels of self-efficacy as a result of their successful

participation in coursework. On the other hand, if novice teachers do not have the benefit of prior opportunities to practice in their teacher education programs, they may feel lower levels of self- efficacy when they come to perform a specific task in their teaching (Yost, 2006).

Self-Efficacy in Special Education

This section explores the academic factors that have been found to have a positive or negative effect on pre-service teachers' level of self-efficacy toward teaching students with disabilities in general education. In many general education classrooms, the lack of training and preparation for including students with disabilities in the general school setting has become a major concern among teachers, leading to a serious lack of confidence in their teaching abilities. (Jenkins & Yoshimura, 2010; Schlauch, 2003). Jenkins & Yoshimura (2010) highlighted the need for general education teachers to acquire appropriate knowledge and teaching strategies related to special education and teaching experience to help them develop effective teaching approaches for students with disabilities in general education. They considered the best way of achieving this to be special education courses that extend their knowledge and teaching skills to include managing inclusion classes. There has been some research into the training and education pre-service teachers (in this case, primary and secondary teachers) receive related to inclusion education, although this has generally focused on applying self-efficacy theory in the area of special education.

In the research into the role ofself-efficacy in inclusion education, the main themes have generally been either specific teacher education training for inclusion

education oracademic courses to provide knowledge related to teaching students with disabilitiesand past teaching experience.

Inclusion training. Several researchers have reported that pre-service teachers can improve their self-efficacy toward teaching students with disabilities in inclusion classes through well-designated coursework (Burton & Pac, 2009; Carroll et al., 2003; Lambe, 2007; Lancaster & Bain, 2007; Palmer, 2006). Most studies developed specified training courses for inclusion to find the effect of the training on pre-service teachers' self-efficacy toward inclusion education.

Examining these studies in more detail, Lancaster & Bain (2007) looked at whether participation in a 13-week undergraduate inclusive education course at an Australian regional university led to any improvement in the self-efficacy of pre-service elementary education teachers. Of the 125 pre-service teacher educators who participated in this study (male: 30, female: 95), 121 had no previous experience of working with students with disabilities. Of the remaining four, two had people with disabilities in their family and two were engaged in working with adults with disabilities on a part-time basis. Seventy-seven of the participants were in the second year of a bachelor's degree in primary (elementary) education, and 48 participants were enrolled in the university's bachelor's degree in early childhood education. The students were spread across two campuses (Campus A and Campus B).

The primary education students in Campus A, designated Group A, were assigned to the mentoring condition, which was operated by a one-on-one student mentoring experience with high school students with disabilities who were in regular class settings. The training program provided the undergraduate students with experience in the type of

interpersonal communication skills they would need for mentoring, the organization and structure of meetings, giving feedback, and action planning. Group B consisted of the primary education degree students attending Campus B who had agreed to participate in the study. This group was given additional lectures and tutorials on communication, transition, literacy and numeracy difficulties, and assistive technology in preparation for their experience in inclusive classrooms. The students then participated in a weekly, one hour inclusive classroom support experience for weeks 7–13. These participants worked with individuals or small groups composed of both students with disabilities and their peers. Activities focused on literacy and numeracy skills, including guided reading, home reading, small-group activities, and one-to-one guided practice with literacy skills. Group C was the subject-only condition, which consisted of the regular 13-week university program at Campus A that did not include support for inclusion. This group was made up of early childhood degree students only. After their common lecture and tutorial experiences, the students in this group received an additional 6 weeks of lectures and tutorials in early intervention, communication and language development, assistive technology, literacy and numeracy skills, and transition to school for students with disabilities. The students were required to prepare group presentations that translated the lecture and tutorial content into practice. For data collection, the authors used the Self-Efficacy Toward Future Interactions with People with Disabilities Scale (SEIPD) (Hickson, 1996). The survey scale includes 15 items spread across three areas: willingness to initiate behavior, willingness to expend effort in completing behavior, and persistence in the face of adversity; these are assessed on an 8-point Likert scale.

The results revealed no statistically significant differences across the three groups (Primary Campus A, Primary Campus B, and Early Childhood Campus A) at pre-test, $F(2, 122) = 1.094$, $p = .33$. However, a comparison of the pre- and -post test results (a repeated-measures analysis of variance) revealed statistically significant differences, $F(2, 122) = 28.174$, $p < .0001$; d = 0.57, with the means for each group being: Group A (*M*: pre =75.07, post= 83.17); Group B (*M*: pre = 76.46, post= 92.81); and Group C (*M*: pre = 69.08, post= 87.65). These results indicate that participation in an inclusive education course did lead to an improvement in self-efficacy. This finding indicates that the coursework related to inclusion did indeed have a positive effect on the pre-service teachers' self-efficacy toward inclusion. Of the three groups, the effect of mentoring had the lowest impact. However, the authors pointed out that not all the participants in the three groups had previously participated in special education courses and the outcomes reported were extracted for only 13 weeks (Lancaster & Bain, 2007). Therefore, they recommended future research should focus on verifying the effect of special education courses on pre-service general education teachers' self-efficacy toward inclusion education.

Academic course and past teaching experience. Courses related to special education such as Introduction to Special Education and experience gained through a practicum teaching students with disabilities are both associated with higher levels of self-efficacy toward inclusion for pre-service teachers (Brownell & Pajares, 1999; Buell et al., 1999; Coladarchi & Breton, 1997; Freytag, 2001; Lancaster & Bain, 2007; Leyser, Zeiger & Romi, 2011; Paneque & Barbetta, 2006).

For example, Leyser et al. (2011) explored the effects of experience with children with disabilities and training in exceptional education on the self-efficacy toward inclusion education of pre-service teachers majoring in general and special education. The study participants consisted of 992 pre-service teacher education majors enrolled in 11 different teacher education colleges, of whom 687 were general education majors and 305 special education majors. This study used 28 items from the Extended Teacher Efficacy Scale developed by Rich, Lev, and Fischer (1996) with the Teacher Efficacy Scale developed by Gibson & Dembo (1984). The Teacher Efficacy Scale was designed to measure two factors, the first of which is the teacher's sense of personal teaching efficacy (PTE, factor 1), specifically a teacher's belief that they have the skills needed to influence student learning and behavior, and the second of which is the teacher's sense of teaching efficacy (GTE, factor 2), namely their belief that external variables such as a student's ability can limit a teacher's ability to bring about change. The questionnaire developed by Rich et al. (1996) included two additional factors, the teacher's efficacy related to student social relations (TES, factor 3) and the teacher's efficacy in dealing with low-achieving students (TEL, factor 4), which were measured using a questionnaire developed by Benz, Bradley, Alderman, and Flowers (1992). To analyze the data, multivariate analysis of variance (MANOVA) tests were performed to identify the relationship between the independent variables and the four self-efficacy factors (dependent variables) (Leyser et al., 2011).

To determine the impact of training in disabilities and inclusion, Leyser et al. (2011) divided the study participants into three groups. Group 1 consisted of special education majors who were enrolled in relevant courses such as special education or

participation in specialized coursework or workshops throughout their program and thus considered to have received intensive training for teaching students with disabilities (much training, *N*=300). Group 2 were the general education majors who had received relevant training of least one course per year (*N*=342), while study participants in Group3 were general education majors with no or little relevant training (*N*=276). Multiple MANOVA revealed that Group 1 (intensive training) showed a strong effect on all four self-efficacy factors, $F_{(8,1824)} = .038.\ 8.97$, $p = 0.001$, $\eta 2_p = 0$ (*M*: factor 1=4.02, factor 2= 4.70, factor 3= 4.51 and factor 4= 5.16); scores for Group 2 (general education majors with little training) were lower, *M*: factor 1=4.04, factor 2= 4.57, factor 3= 4.49 and factor 4= 5.02) but still significantly higher than those of Group 3 (general education majors with no training), *M*: factor 1=3.87, factor 2= 4.35, factor 3= 4.34 and factor 4= 4.84). However, the relationship between year of study and intensity of training did not exhibit a significant difference, $F_{(16,2661)} = 1.03$, $p = 0.441$.

However, this study did not examine the effect of the number of experiences like practicums or the amount of time spent working with students with disabilities when setting up the criteria for the groups. Because of this lack, it is not possible to determine the precise relationship between the number of experiences and self-efficacy toward inclusion.

Leyser et al (2011) concluded that a greater amount of experience with students with disabilities produced higher self-efficacy scores for pre-service teachers regardless of major. This result supports the findings of previous research in this area that revealed that experience with students with disabilities was associated with more positive attitudes toward inclusion (Avramids, Bayliss, & Burden, 2000; Cook, Tankersley, Cook, &

Landrum, 2000; Leyser, Kapperman, & Keller, 1994). Coursework and a better understanding of inclusion have also been found to be related to higher self-efficacy scores (Brownell & Pajares, 1999; Buell et al., 1999; Lancaster & Bain, 2007). This study also found a positive effect for training (courses) related to special education, which again resulted in higher self-efficacy scores for the pre-service teachers toward inclusion education. These results suggest that courses related to teaching students with disabilities can be a useful way to improve pre-service teachers' self-efficacy toward inclusion education.

To look at the effect of practicums on pre-service teachers' self-efficacy, Main and Hammond (2008) explored pre-service teachers' beliefs about effective behavior management strategies and reported self-efficacy before and after their practicum. The participants in this study, who were third-year undergraduate students taking a Bachelor of Education degree in an Australian university, were surveyed to determine their self-efficacy in behavior management and the most effective behavior management strategies they had perceived and observed in schools. In addition to demographic data, questions relating to past experience with children in educational and other settings, and their attitude to inclusive education were posed in the survey. All the participants were enrolled in courses related to inclusion education, such as classroom settings that included students both with and without disabilities. Survey questionnaires were distributed to 155 Kindergarten and 147 Secondary pre-service teachers prior to and after the completion of a four-week practicum. Of these, 123 (41%) of the pre-service teachers responded to the survey prior to taking the practicum, but only 69 (23%) did so after they had completed it. The instrument was the modified Teacher Interpersonal Self-Efficacy

Scale proposed by Baker (2005). In analyzing the data, T-tests and one-way ANOVAs were used.

Main and Hammond (2008) used a pre-determined cut-off point between high and low self-efficacy to compare self-efficacy scores before and after the practicum. According to Creswell (2005), a standard normal distribution representative of an average respondent includes one standard deviation above and below the mean, so following Creswell's recommendation, 2.6 was selected as the midpoint between high and low self-efficacy scores. The results revealed that pre-service teachers reported higher levels of self-efficacy (M = 3.12) after the practicum than before, t (64) = 6.44, p < .05. However, there was no significant difference between the effect of the practicum for primary and secondary education majors, even though both sets of participants showed improvements when comparing their pre- and post- practicum self-efficacy scores (M: Primary: pre=2.85, post=3.16, and Secondary: pre=2.87, post=3.06). Regarding behavior management, prior to the practicum the highest score was for the question on their ability to use a variety of non-aversive techniques, including voice modulation, facial expressions, planned ignoring and proximity control (M = 3.2). In contrast, after the practicum the highest score was for the question on their ability to self-evaluate their own teaching and classroom management skills and use the results constructively (M = 3.4). Overall, the pre-service teachers with higher self-efficacy scores showed statistically higher behavior management scores, F (3,118) = 4.660, p< .05.

Main and Hammond (2008) found that the practicum had a positive effect on pre-service teachers' self-efficacy toward inclusion and that this higher level of self-efficacy corresponded with positive management strategies. However, this study did not include

detailed statistical information and the type of practicum (for example, with students with disabilities only, with students in inclusion settings, or with students with no disabilities) was not clear, although given that the primary focus of this study was on the development of pre-service teachers' self-efficacy toward inclusion education, it would be reasonable to expect the practicum setting to match this focus.

Self-Efficacy in Physical Education and Adapted Physical Education

Researchers in physical education have focused on self-efficacy during the past decade. Most research focused on in-service physical education teachers' self-efficacy (Callea, Spittle, O'Meara,& Casey, 2008; Chase, 2001; Goudas & Dermtizaki, 2004; Hutzler et al, 2005; Martin & Kulinna, 2003; Martin, Kulinna, Eklund, & Reed, 2001; Martin, McCaughtry, Kulinna, & Cothran, 2008; Siedentop, 2002; Tsangaridou, 2002). Martin and Kulinna (2003) and Martin et al. (2001) found that teachers' efficacy gradually decreased when they saw that their students could not perform teaching assignments. Furthermore, findings revealed that physical education teachers' efficacy also declined when students did not feel interest in the assignment and did not participate in physical activities. A lack of pedagogical or content knowledge and the level of teaching skills are known to be factors that affect teachers' self-efficacy (Martin et al., 2008; Siedentop, 2002; Tsangaridou, 2002). Furthermore,physical education teachers' efficacy is associated with students' attitudes toward physical education and teaching environments and the number of lessons per semester (Chase, 2001; Goudas & Dermtizaki, 2004; Hutzler et al, 2005).

For example, Martin et al. (2008) examined the impact of mentoring-based professional development on physical education teachers' efficacy. The purpose of this

study wasto find ifteachers increase their self-efficacy when theyuse pedometers and computers to enhance instruction**,** and if they reduce their computer anxiety. To collect data, experienced mentor teachers were paired (*n* = 15) with inexperienced pre-service teachers (n = 15) at the beginning of a yearlong intervention. To analyze the data, repeated-measures ANOVA was used. Findings revealed that both mentors and inexperienced teachers significantly increased their efficacy whenusing computers and pedometers. However, the sample sizewas very small (N=30) even though this study used latent growth data. This means that this study's results may not be generalizable to other groups. However, it is meaningful that these findings clarify the effect that proper training (pair-group intervention) has on increasingteachers self-efficacy (using computers and pedometers).

Although many researchers have tried to focus onin-service physical education teachers' efficacy, there is little researchrelated to pre-service physical education teachers' self-efficacy. Gurvitch and Metzler (2008) examined the effect of laboratory-based (LB) and field-based (FB) practicum experience on pre-service teachers' efficacy levels within one physical education teacher education program. The participants were 59 undergraduate students, of whom 31 participants were assigned to the LB design and 28 to the FB design. A quasi-experimental design with two levels of treatment and no control group was implemented. A version of the modified Teacher Efficacy Scale (TES) for physical education teachers was used. Participants were asked to complete TES at four stages of their pre-service program: (1) at or near entry; (2) at the start of their methods course sequence; (3) at the end of the methods course sequence, just prior to student teaching; and (4) at program completion. A repeated measures ANOVA was used

to analyze data collected by TES. Findings indicated significant differences between groups of teacher efficacy at Stages 2 and 3. At the end of the student teaching period, however, the efficacy levels of both groups were broadly similar. This suggests that if the LB practicum experience provides an authentic experience for pre-service physical education teachers, they will have the same effect on improvement of self-efficacy as those who receive the FB practicum experiences. However, the sample size in this study was again very small (N=59) and its results may again not be generalizable to other populations. However, this study does suggest that the effect of a well-developed LB practicum can have an equivalent effect to that of an FB practicum inimproving pre-service physical education teachers' self-efficacy.

In the area of APE, there has been very little research specifically examing self-efficacy toward inclusion in physical education. One study examined the relationship between one-day workshops and in-service teachers' self-efficacy (Taliaferro & Harris, 2014), while others have examined the relatioship between support from paraprofessionals and in-service teachers' self-efficacy (Pedersen,Cooley&Rottier, 2014) and the relationship between PETE coursework and pre-service teachers' self-efficacy (Hutzler et al., 2005; Taliaferro et al., 2015).

Pedersen et al. (2014) measured the effect of using paraprofessionals on Australian health and physical educators' (HPE) efficacy in an inclusion setting. To recruit participants, the authors emailed 450 Australian physical education teachers, identifying 14 (6 male and 8 female) who received support from paraprofessionals. Their results revealed that the physical educators felt that their efficacy in inclusive physical education depended on the support they received from the paraprofessionals. For

example, they found that the paraprofessionals helped by serving as guides, physical assistants, and one-on-one instructors for students with disabilities in general physical education classes. The researchers thus concluded that the level of self-efficacy improves when physical education teachers and paraprofessionals' work together as collaborative teams.

Summary of Self-Efficacy

This review of the previous literature on the most appropriate coursework for inclusion education has revealed that special education courses and practicums are important elements in developing primary and secondary pre-service teachers' self-efficacy toward inclusion. The literature reports verify the effect of courses and practicum on pre-service teachers' self-efficacy toward inclusion education. According to Leyser et al. (2011), more extensive experience working with students with disabilities helps pre-service teachers develop higher levels of self-efficacy belief toward inclusion education and they emphasized the strong effect of intensive training for disabilities and inclusion in teacher education program. Main and Hammond (2008) concurred, reporting that pre-service teachers showed higher self-efficacy scores after taking a practicum than before. Lancaster and Bain (2007) agreed, noting that coursework related to inclusion also had a positive effect on pre-service teachers' self-efficacy. Furthermore, they suggested that this support would be stronger if pre-service teachers were enrolled in special education courses.

In the literature on physical education, the factors that influence in-service physical education teachers' self-efficacy toward teaching students are students' level of performance, a lack of pedagogical or content knowledge and the level of teaching skills

(Chase, 2001; Goudas & Dermtizaki, 2004; Hutzler et al, 2005; Martin & Kulinna, 2003; Martin et al., 2001; Martin et al., 2008; Siedentop, 2002; Tsangaridou, 2002). The factor that appears to lead to the biggest improvement in pre-service teachers' self-efficacy is successfully completing a teaching practicum. According to Gurvitch and Metzler (2008), pre-service teachers' self-efficacy is improved through various steps of a teaching practicum: (1) at or near entry; (2) at the start of their methods course sequence; (3) at the end of the methods course sequence, just prior to student teaching; and (4) at program completion.

In the area of APE, one-day workshops and support from paraprofessionals have been shown to improve in-service physical education teachers' self-efficacy toward teaching students with disabilities in GPE classes (Pedersen et al., 2014; Taliaferro & Harris, 2014). In addition, coursework and teaching practicums are identified as factors that influence pre-service physical education teachers' self-efficacy toward teaching students with disabilities in GPE classes (Taliaferro et al., 2015).

Self-efficacy is a task-specific and situational-specific form of self-confidence. This framework has been defined by Bandura as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (1997, p.3). Furthermore, self-efficacy levels influence an individual's magnitude of adherence to specific goals and persistence while trying to achieve those goals (Gurvitch & Metzler, 2008). This indicates that physical education teachers are influenced by their level of self-efficacy belief while working with students with disabilities in their GPE classes. Furthermore, as previously discussed, both teacher preparation coursework and practicum experiences related to teaching students with disabilities are common factors that

improve pre-service teachers' self-efficacy in teacher education, special education, and general and adapted physical education. In particular, in the areas of special education and APE, these common factors influence pre-service teachers self-efficacy toward teaching students with disabilities in inclusive education setting. Therefore, self-efficacy theory provides an appropriate framework for this study to examine the improvement of pre-service teachers' self-efficacy beliefs through teacher preparation coursework related to teaching students with disabilities in the PETE program.

Adapted Physical Education Teacher Education Program (APETE)

In Korea, there are two types of PETE program: adapted physical education teacher education (APETE) programs and general physical education teacher education programs (GPETE) programs. In APETE programs, undergraduate students are required to take GPE courses and APE courses, as well as the standard education courses such as professional teaching courses, special education courses and student teaching (Cho, 2003; Jeoung & Hong, 2003; Park et al, 2013). For example, according to Park et al (2013), undergraduate students in APETE programs are generally required to take 38 credits of APE and GPE courses, 22 credits of professional teaching courses, and 42 credits of special education courses. These credits are required if students are to receive a special education teacher certification (physical education major) (Ministry of Education, 2013). Table 2 shows the courses typically included in an APETE program.

Several researchers have reported that many physical education teachers consider that general PETE programs should provide preparation courses for pre-service physical education teachers to help them approach the task of teaching students with disabilities in general physical education with positive attitudes. Researchers agree that positive

attitudes correspond to high confidence levels (Coates, 2012; Hersman & Hodge, 2010). Coates (2012) emphasizes the relationship between preparation courses for inclusion physical education in general PETE programs and the level of confidence. In Combs et al. (2010)'s study, both the in-service general physical education teachers who had positive attitudes had taken adapted physical education and special education courses. In addition, pre-service physical education teachers who have prior practicum and teaching experiences are better prepared for teaching students with disabilities in GPE (Hodge & Elliott, 2013).

In particular, Coates (2012) examined the preparedness and confidence of student physical education teachers to determine whether student teachers were prepared to teach students with disabilities in a general physical education environment. The study recruited a total of 170 student teachers, 78 (46%) enrolled in a four-year BA, and 92 (54%) a one-year Postgraduate Certificate in Education [PGCE]) at a North West England ITT institution. A 31-item semi-structured open and-closed questionnaire was developed and used for the data collection. The results revealed that 78% of the one-year PGCE student teachers believed that they did not receive training for inclusion physical education. In contrast, 98% of student teachers in the four-year BA program thought they had received this training, which suggests that of the two groups, the student teachers in the four-year BA program felt more satisfaction about their training for inclusion physical education. Furthermore, students in the BA program who received inclusion physical education training demonstrated a desire to gain experience teaching inclusion physical education. In particular, this research discovered that courses dedicated specifically to inclusion physical education allowed participants to feel better prepared and more

confident in their ability to teach students with disabilities in general physical education classes. However, this study utilized participants selected from intact groups rather than random groups so the participants may not be a representative sample. Furthermore, this study failed to clarify which courses were offered by the two programs. If two programs were to offer different courses, the results of this study may well be different. Lastly, this article did not explain how the instruments were developed and what items were included, and the reliability and validation of the instruments were not tested. However, this study did confirm that courses related to teaching students with disabilities have a positive effect on pre-service teachers' self-confidence toward inclusion physical education.

In the area of special education, Leyser et al. (2011) emphasized the strong effect of intensive training for disabilities and inclusion in special education teacher education programs. Main & Hammond (2008) also reported that pre-service teachers who had taken practicums showed higher self-efficacy scores than those who had not.

There is no research examining the effect of preparation courses on pre-service physical education teachers' self-efficacy toward teaching students with disabilities in GPE in Korean context, even though the curricula of the APETE programs suggest a preparation program that will equip Korean pre-service physical education teachers to successfully teach students with disabilities in GPE. Only Kim & Yun's (2014) study suggested the importance of APE courses and special education courses in training pre-service physical education teachers for inclusion physical education in PETE programs. However, the objective of this study was to examine teacher empowerment toward inclusion physical education. Studies looking at the PETE curriculum have found that

APE and special education courses are electives in Korea PETE programs (Kim & Yun, 2014; Lee & Choi, 2011).

Table 2

Courses in the APETE Program (Park et al., 2013).

Academic Area	Course
Special Education	Introduction to Special Education Curriculum for Special Schools Inclusion Education for Students with Disabilities Measurement and Assessment for Children with Disabilities Technology for Special Education Special Education for Blind/ Visual Impairment Special Education for Deafness Special Education for Intellectual Disabilities Special Education for Physical Disabilities Special Education for Multiple/Severe Disabilities Special Education for Emotional / Behavioral Disorders Special Education for Autism Special Education for Communication Special Education for Learning Disabilities Special Education for Health Problems Logical Thinking for Adapted Physical Education
Pedagogy	Introduction to Pedagogy Educational Psychology Educational Technology Educational History and Philosophy Educational Sociology Educational Administration Educational Field
Sport Pedagogy	Sport Pedagogy

Adapted Physical Education	Introduction to Adapted Physical Education Curriculum Education for Adapted Physical Education Adapted Physical Education for Blind/ Visual Impairment Adapted Physical Education for Deafness Adapted Physical Education for Intellectual Disabilities Adapted Physical Education for Physical Disabilities Adapted Physical Education for Multiple/Severe Disabilities Adapted Physical Education for Emotional / Behavioral Disorders Adapted Physical Education for Autism Adapted Physical Education for Communication Adapted Physical Education for Learning Disability Adapted Physical Education for Health Problems Teaching Equipment and method for Adapted Physical Education
Theories of Kinesiology	Exercise Physiology Exercise Kinesiology Sport Sociology Philosophy of Physical Education Measurement and Assessment for Physical Education/Activity Exercise Learning and Psychology Sport History

Review of Literature in Inclusion Physical Education

According to Lancaster and Bain (2007), appropriate coursework related to inclusion education has a positive effect, improving the level of pre-service teachers' self-efficacy. They go on to suggest including topics such as behavior management strategies, disability characteristics, inclusion practices, and curricular adaptations in teacher education courses. However, even though self-efficacy theory has been has been applied to various areas, there has been little research that specifically examines the relationship between physical education teacher education courses and self-efficacy regarding

inclusion physical education in the area of APE. Given this lack of research related to pre-service teachers and self-efficacy, this literature review has been extended to include attitudes such as perceived competence and confidence, as well as the literature on in-service general physical education teachers' attitudes toward teaching students with disabilities. The research in these related areas is expected to shed additional light on the need to incorporate inclusion strategies and approaches in teacher education programs.

Attitude

Research related to attitudes toward inclusion physical education has mainly focused on in-service teachers' attitudes when teaching students with disabilities in general physical education (Coates, 2012; Combs et al, 2010; Doulkeridou, Evaggelinou, Mouratidou, Koidou, Panagiotou, & Kudlacek, 2011; Elliott, 2008; Fournidou, Kudlacek, & Evagellinou., 2011; Hersman & Hodge, 2010; Hodge et al., 2009; Hodge & Elliott, 2013; Jeong & Block, 2011). Only two studies were found that examined pre-service teachers' attitude toward inclusion physical education (Mangope et al., 2013; Martin & Kudlacek, 2010).

Findings were divided into two different points of view. The first focuses on the reasons teachers have a negative attitude toward inclusion physical education and the results indicate that limited coursework and professional training, lack of teaching experience, and a general lack of support are all major factors that hamper the development of positive attitudes toward inclusion physical education (Combs et al, 2010; Doulkeridou et al., 2011; Elliott, 2008; Fournidou et al., 2011; Mangope et al., 2013; Martin & Kudlacek, 2010).

For example, Elliott (2008) investigated the relationship between teachers' attitudes toward the inclusion of children with mild to moderate intellectual disability in physical education and the amount of practice attempts performed and the level of success attained by these students compared to their peers without disabilities in the U.S. This study used the Physical Educators' Attitude Toward Teaching Individuals with Disabilities III (PEATID III) as an initial screening mechanism, and elementary physical education teachers were mailed copies of the instrument. After collecting and reviewing the completed questionnaires, 20 elementary physical education teachers were selected as the participants and separated into two groups depending on their positive or negative attitude towards inclusion physical education. To set up the teachers' practice, two students with mild/moderate intellectual disability participated in their class in the same manner as the other students. After the practice, the scoring instrument was used to show how many attempts each student had, and what percentage of the total attempts were successful. A two-factor split-plot or mixed ANOVA was utilized to analyze the data for two aspects of the teacher's attitude toward inclusive physical education. There was no significant difference between teachers' attitude and the type of students with disabilities, F (1,18) = .495, p= .491; teachers were neither more nor less positive about including the blind as they were other groups. On the other hand, there were significant differences between the number of practice sessions and the teachers' attitude, F (1,18) = 9.022, p= .008. This result indicates that more opportunities to practice inclusive physical education built the teachers' confidence in their ability to do so successfully. Interestingly, no statistically significant difference was found between the type of student and the percentage of practice attempts that were successful, F (1,18) = 2.488, p = .132.

However, this article did not explain how the scoring instrument was created, which components and items were included or how the instrument was validated. This study also failed to include a control group. The small sample size and low return rate may also limit the utility of these results.

Doulkeridou et al. (2011) examined physical educators' attitudes toward working with students with disabilities in general physical education classes in Greece, comparing the attitudes of those teaching physical education courses related to Olympic/ Paralympic education and examining gender differences. Study participants were 410 physical education teachers (200 male and 210 female) and the instrument used was Attitudes toward Teaching Individuals with Physical Disabilities in Physical Education (ATIPDPE). Specially developed for this study, this instrument consists of 10 questions on a 7 point-Likert scale. To establish content validity and reliability, Cronbach's coefficient alpha was used to determine the internal consistency and found to be .864 for the 10 questions. A two-way ANOVA was used to analyze the data. The results revealed no significant differences between teaching types of physical education courses and gender, even though the positive attitude toward inclusion physical education (M=6) had a higher score than the negative attitude (M= 4). Although this study examined the effect of gender differences and the different types of physical education courses on teachers' attitude toward inclusion physical education, neither the students' ages or type of disability were considered in the ATIPDPE. This limits the applicability of this instrument as it is not capable of analyzing the influence of type of disability and participants' age on attitudes toward working with students with disabilities in physical education.

Another study investigating how teachers' attitudes toward teaching students with mild and moderate disabilities in general physical education are formed and affect their teaching (Combs et al., 2010) recruited a small group of four participants using PEATID III and divided them into two groups: two teachers with positive attitudes and two with negative attitudes toward inclusive physical education. All four teachers had extensive experience teaching students with mild and moderate intellectual disability in their general physical education classes. Interviews were conducted to collect in-depth descriptive information from all four participants and clear differences in their teaching style were observed between the two groups. The teachers with positive attitudes (Group 1) tried to improve their teaching skills to manage inclusive physical education by focusing on multiple areas and objectives to provide students with and without disabilities with a variety of teaching styles in their classes. In contrast, the teachers with negative attitudes (Group 2) used only traditional games and sports skills, failing to adapt to individual differences. One male teacher with a negative attitude mentioned that it was his experience that even students with mild disabilities had problems working with peers in almost every class. Interestingly, Group 1 had taken courses related to adapted physical education and special education while Group 2 had not. Knowledge of this issue therefore clearly affects teachers' attitudes towards it. There were also different definitions of student success between the two groups. Teachers in Group 1 judged success in terms of motor performance; teachers in Group 2 commented on students' success in inclusive physical education using only individual impressions such as "happy," "good," or "busy."

Combs et al. (2010) explored the different characteristics between the two pairs of teachers and went on to emphasize important aspects of teaching related adaptive courses in physical education such as how to plan, modify a plan, and teach physical education. The advantage of this emphasis is that it offers a useful approach for developing or modifying college courses to improve pre-service teachers' attitudes toward inclusive physical education. However, since the study focused specifically on elementary physical education teachers, the findings do not necessarily apply to secondary physical education teachers. The small sample size is also a limitation. Furthermore, this type of purposeful sampling strategy cannot be representative of the target population as a whole.

On the other hand, another view focused on the factors that encourage teachers to develop a positive attitude toward inclusion physical education. The results of these studies indicate that support, knowledge of students with disabilities, encouragement from other specialists, preparation for inclusion, in-service professional workshop, confidence, and perceived competence all help build a positive attitude toward inclusion physical education (Coates, 2012; Hersman & Hodge, 2010; Hodge et al., 2009; Hodge & Elliott, 2013).

To shed more light on these factors, Hodge et al. (2009) analyzed physical education teachers' beliefs related to inclusion and teaching students with disabilities from a number of different countries and cultures using an explanatory multiple-case study. Here, the study participants consisted of 29 physical education teachers from Ghana (Africa), Japan, the United States, the Philippines and Puerto Rico. The authors began by administering the Physical Educators' Judgments about Inclusion Survey (PEJI, five-point Likert scale) developed by Hodge, Murata, and Kozub (2002) and then

followed this up by conducting a series of interviews with the study participants. Based on the descriptive statistics collected, the Mexican-American (*M* = 2.5) and Japanese (*M* = 3.3) teachers generally held negative attitudes towards inclusion in general physical education, while the African-American, Puerto Rican, Filipino, Ghanaian, and White-American teachers were mostly positive (*M* = 3.5 to 3.7). The interviews revealed two thematic findings. The first theme identified was *Compelling Motives*. Most teachers stated that they acquired motivation when they helped all their students to succeed, including the students with disabilities. Interestingly, this was not the case for the Japanese teachers, who depended on external factors, primarily school administrators, colleagues, and educational policies, to improve their motivation for inclusion physical education classes. The second theme that emerged was *Multiplicity of Concerns*. Participants considered themselves to be struggling with their lack of knowledge and preparedness for instruction for teaching students with disabilities in general physical education classes for much of the time. They also noted that large class sizes were one of their biggest challenges when teaching students with disabilities in their class.

Vickerman and Coates (2009) examined the perspectives of trainees and recently qualified physical education teachers in relation to their perceived readiness to include students with disabilities in their classes. This study recruited 202 trainee and 19 recently qualified teachers (within 2 years), utilizing a mixed research design and collecting data through open and closed questionnaires that focused on participants' current experiences and perceived confidence in teaching students with disabilities in general physical education. The data collection was divided into two stages by distributing two different questionnaires to the trainee teachers and recently qualified PE teachers in order to

identify differences and similarities between the two groups regarding their current experiences and perceived confidence when teaching students with disabilities in general physical education classes. Their reflections on the effectiveness of their training, professional development and training, links with schools and mentors, interpretations of inclusive PE and general values and attitudes were elicited.

The results revealed that 45% of the trainee teachers thought that their courses included issues related to teaching students with disabilities (Vickerman & Coates, 2009). In addition, 30% mentioned that training for teaching students with disabilities in general physical education was one of the compulsory parts of their course. Regarding the number of hours trainees spent learning how to teach students with disabilities, 2% of them indicated this was between 0 and 5 hours, and 21% thought that they spent more than 100 hours doing so, but the great majority (70%) of the trainee teachers indicated that the total number of hours they devoted to this was between 5 and 70 hours, spread throughout their course. In addition, 55% of them had teaching experiences as a practicum rather than theoretical training. Regarding the assessment of knowledge, only 27% of the trainee teachers had experience in assessment with specific reference to inclusion physical education and just 19% thought that special school experiences should be compulsory, with 59% saying special school experiences should be optional. In terms of their attitude toward inclusion physical education, 62% of the trainees agreed that students with disabilities should be included in general schools and 93% considered that inclusion issues should be comprehensively addressed in ITT.

Looking at the responses from the recently qualified physical education teachers, 26% indicated that ITT mostly provided theory-based instruction in this area, while a

further 16% responded that 90% of the coursework was theory. When asked about their preparation for inclusion, 84% of the recently qualified teachers mentioned that they were not given any preparatory education for teaching students with disabilities in their initial teacher training. Regarding the teachers' experience, they commented that initial teacher training providers should give trainees the opportunity to develop appropriate strategies for inclusion physical education that incorporated both theoretical and practical knowledge related to students with disabilities. In addition, 33% of them insisted that school-based training experience should be strengthened in order for trainee teachers to be challenged on a daily school basis.

Based on these findings, Vickerman and Coates (2009) recommended that educational institutions training physical education teachers should try to provide more opportunities for pre-service teachers to take courses in inclusion physical education and maintain a better balance between theoretical and practice courses related to students with disabilities, agreeing with DePauw and Doll-Tepper (2000) who pointed out that theoretical knowledge is as important as practical experiences in improving awareness and changing the role of the physical education professional. In addition, Vickerman and Coates (2009) suggest that trainee teachers would benefit from more opportunities to experience the full continuum of learning needs. However, this article did not clarify how the instruments were developed and what items were included, and once again the reliability and validation of the instruments was not tested. The unbalanced sample size may also be a problem.

Self-Efficacy

There has been very little research specifically examing self-efficacy toward inclusion physical education. One study examined the relationship between one-day workshops and in-service teachers' self-efficacy (Taliaferro & Harris, 2014), while other studies examined the relatioship between support from paraprofessionals and in-service teachers' self-efficacy (Pedersen et al, 2014), and the relationship between PETE coursework and in-service teachers self-efficacy (Hutzler et al, 2005; Taliaferro et al., 2015).

Taliaferro and Harris (2014) investigated the effects of a one-day (approximately six-hour) workshop on general physical educators' self-efficacy related to including students with autism in general physical education settings. The participants here were 38 general physical education teachers participating in a one-day workshop as a treatment group, and 27 general physical education teachers who did not participate in the workshop as a control group. This article used the Physical Educators' Self-efficacy Toward Including Students with Disabilities-Autism (PESEISD-A; Taliaferro, Block, Harris, & Krause, 2010). The internal consistency measured by Cronbach's alpha was .928. The research design was a pretest-posttest group design, and a mixed-design/split-plot analysis of variance (ANOVA) was used to analyze the data. The analysis revealed that the posttest showed a significant difference from simple effect on time, $F(1,63) = 7.92$, $p = .007$, but there was no statistically significant difference from a simple effect on the workshop intervention, $F(1,63) = .800$, $p = .374$. In addition, the interaction revealed no significant difference for the time (pretest and posttest) and treatment effect (control and experimental), $F\ (1,63) = 2.97$, $p = .09$. Therefore, the authors concluded that the

time effect between pretest and posttest increased scores of general physical educators' self-efficacy related to including students with autism in general physical education settings. However, the effect of the workshop alone did not show any significant effect on general physical educators' self-efficacy related to teaching students with autism in the general physical education class. The results of this study should be treated with caution, however, given the small number of participants and short time period (only one observation that lasted 6 hours). Hence, this sample and treatment cannot be a comprehensive representation.

Taliaferro et al (2015) examined the effect of courses related to adapted physical education courses and an on-campus practicum on pre-service physical educators' self-efficacy beliefs toward the inclusion of individuals with specific disabilities, in this case autism, intellectual disabilities, physical disabilities, and visual impairments. The participants of this study were 98 students (75 males and 23 females) who were enrolled in physical education teacher education that offered two courses related to adapted physical education and one on-campus practicum. All participants took at least one of the two courses each of which consisted of a 15-week program with an associated on-campus practicum. The participants who were enrolled in course 2 had already completed course 1; both courses were presented by the same instructor. Regarding the content of courses, course 1 related to the characteristics of disabilities and implications for physical education, implementation, and evaluation, while Course 2 was a senior level adapted physical education course that provided professional coursework in the last semester. The course met for 130 minutes each week, which covered the planning, implementation, and modification of lessons for students with disabilities and included managing a teaching

environment, staff, and assistants; collaborating with special education staff; assessing student performance and progress; and reflecting on teaching experiences. The on-campus practicum that accompanied the course was a nine-week program requiring an additional 60 minutes per week. The students with disabilities who participated included students with autism (43%), intellectual disabilities (ID, 24%), visual impairments (VI, 0%), and physical disabilities (PD, 12%). The first of the two instruments used was the Physical Educators' Self-Efficacy Toward Including Students With Disabilities–Autism (PESEISD-A) (Taliaferro et al., 2010), which was used to judge participants' confidence in performing 10 tasks associated with teaching autism students in a general physical education class. This instrument uses a 10-point Likert scale. Reliability and validity were verified by Taliaferro et al. (2010); a one-factor solution accounted for 57.05% of the variance and internal consistency of Cronbach's $\alpha = .928$. The second instrument was the Situational Specific Self-Efficacy Instrument for Physical Education Teacher Education Majors scale (SSSI-PETE) (Block, Hutzler, Barak, & Klavina, 2013). The content of this instrument included a 15-item measure of self-efficacy beliefs related to three types of disability (intellectual disability, physical disability, and visual impairment) subscales with a five-point Likert scale. According to Block et al. (2013), Cronbach's alpha reliability for all items in each of the scales is high (ID = .86, PD = .90 and VI = .92). In addition, this survey instrument has a good goodness of fit for the ID scale and a moderate fit in the PD and VI scales (Block et al., 2013). For the data analysis, all participants were surveyed three times. The survey was performed in Week 1 (before the start of the practicum), Week 8 (halfway through the practicum), and Week 15 (at the conclusion of the practicum and course). Four separate two-factor fixed-effect split-plot

analyses of variance (ANOVAs) were conducted to examine the effects of an adapted physical education course with the practicum on pre-service teachers' self-efficacy beliefs toward inclusion physical education. The analysis of the autism results revealed no significant difference between course 1 and course 2 on self-efficacy belief for teaching autism, $F(1, 85) = 3.33$, $p = .072$, although there was a significant difference across time, $F(2, 170) = 92.15$, $p < .001$ and the effect size was large, $\eta 2 = .51$. Looking at the effect of self-efficacy belief toward teaching intellectual disability in general physical education, there was no significant difference between course 1 and course 2, $F(1, 88) = .87$, $p = .35$, although once again there was a significant difference across time, $F(2, 176) = 98.24$, $p < .001$ and the effect size was large, $\eta^2 = .52$. Regarding physical disability, there was no significant difference between course 1 and course 2 on self-efficacy belief for teaching physical disability, $F(1, 86) = 0.50$, $p = .48$ but a significant difference across time, $F(2, 172) = 69.39$, $p < .001$ and, once again, the effect size was large, $\eta^2 = .45$. Finally, the result revealed no significant difference between course 1 and course 2 on self-efficacy belief for teaching visual impairment, $F(1, 86) = .64$, $p = .43$, but yet again there was a significant difference across time, $F(2,172) = 82.70$, $p < .001$ and a large effect size, $\eta^2 = .49$. To enrich the statistical results, the authors conducted a purposeful open-ended survey that found that 42% of the participants began to feel comfortable working with students with disabilities around Week 3. Five participants also reported that they gained confidence when they received feedback and support from peers, teachers, paraprofessionals, and graduate assistants.

However, this study did not use a control group, such as pre-service physical education teachers who did not take an adapted physical education courses or had no

practical experience teaching students with disabilities. If the authors had been able to compare the results from a control group with those of the participants in this study, the effect of the courses related to adapted physical education and practicum on their self-efficacy belief toward inclusion physical education would be verified and further clarified. Moreover, this study used an intact sampling strategy rather than a random sampling strategy. Therefore, the participants in this study did not wholly reflect the effect of adapted physical education courses.

Summary of Research Into Inclusive Physical Education

As discussed previously, positive attitudes toward inclusion physical education have consistently been reported by researchers. However, a number of factors that disturb and degrade this positive attitude were also found in the literature. In the research related to in- and pre-service physical education teachers' attitudes, unprepared coursework and professional training, the lack of teaching experiences, and the lack of support were all major factors that hampered the development of positive attitudes toward inclusion physical education (Combs et al, 2010; Doulkeridou et al., 2011; Elliott, 2008; Fournidou et al., 2011; Mangope et al., 2013; Martin & Kudlacek, 2010). Studies investigating positive attitudes toward inclusion physical education identified factors such as support from school administrators, colleagues, and educational policies, additional professional training, greater knowledge of students with disabilities, encouragement from other specialists, preparation for inclusion, in-service professional workshops, confidence, and perceived competence as contributing to a more positive attitude toward inclusion physical education (Coates, 2012; Hersman & Hodge, 2010; Hodge et al., 2009; Hodge & Elliott, 2013).

Regarding self-efficacy toward inclusion physical education, the main factor that has been found to improve self-efficacy is the duration of the participation rather than the type of adapted physical education courses or the effect of a one-day workshop (Taliaferro & Harris, 2014; Taliaferro et al., 2015). However, little research that focuses specifically on pre-service teachers' self-efficacy has yet been reported in the literature. Although Hutzler et al (2005) looked closely at the impact of various types of coursework related to preparation for teaching students with disabilities, they found no effect due to the type of course, namely adapted physical education, special education, and teaching practicum for students with disabilities. Taliaferro et al. (2015) also examined the effect of adapted physical education courses on pre-service teachers' self-efficacy toward inclusion physical education, but only two courses were included and the study was limited to adapted physical education. Future research is thus needed to verify the effect of the number of APE courses in PETE programs on pre-service physical education teachers' self-efficacy toward inclusion physical education.

Conclusions

This review of the literature suggests that the relationship between the type of preparation coursework related to teaching students with disabilities and the level of pre-service teacher confidence that results is a valuable factor supporting successful inclusion physical education with a positive attitude. Furthermore, although it was a very limited sample Combs et al. (2010) reported that the GPE teachers with positive attitudes in their study had taken both APE and special education courses during their PETE program. In special education studies, courses related to special education and experience teaching

students with disabilities were identified as an important strategy that can improve pre-service teachers' self-efficacy toward inclusion (Leyser et al., 2011).

The Korean APETE program includes a number of different types of required coursework: APE and special education courses, and practicums (on-campus practicum and student teaching). The beneficial effect of special education courses and practicums on pre-service teachers' self-efficacy, especially in the area of special education, are highlighted in the findings of various studies that demonstrated how they enhance pre-service teachers' self-efficacy toward inclusion education environment. Viewed as a whole, the published research literature in this area indicates that each type of course (APE and special education) as well as practicums can all be important variables that have a positive impact on the level of pre-service physical education teachers' self-efficacy toward teaching students with disabilities in GPE.

As yet, no research has been reported that seeks to verify the effect of the number of credits of each course on pre-service physical education teachers' self-efficacy toward inclusive physical education.There is therefore a need for research to identify the effect of possible courses related to teaching students with disabilities in GPE. It may be possible to suggest a model for physical education teacher education programs that can improve pre-service teachers' self-efficacy toward inclusion in physical education.

CHAPTER 3

METHODOLOGY

The purpose of this study was to explore the effect of coursework and type of practicum related to teaching students with disabilities in GPE to improve pre-service physical education teacher's self-efficacy toward inclusion physical education. In particular, this study analyzed (a) the effect of the type of course, namely special education, adapted physical education, campus-based practicum, and volunteer experiences, on pre-service physical education teachers' self-efficacy toward inclusion physical education; (b) the relationship, if any, between the number of credits of classes taken and pre-service physical education teachers' self-efficacy toward inclusion physical education; (c) the relationship between participation in campus-based practicum and volunteer activities on pre-service physical education teachers' self-efficacy toward inclusion physical education; and (d) the effect of sources of self-efficacy on self-efficacy scores in pre-service teachers. There were two purposes for this study. This study sought to verify the effect of the number of credits of courses and practicum type on self-efficacy toward inclusion physical education through survey research. This chapter presents the method that was used to guide this study organized under the following subsections: Participants, Instrument, Procedures, and Data Analysis.

Research Design

In order to investigate the effect of the self-efficacy of pre-service teachers majoring in adapted physical education toward teaching students with disabilities in GPE, data were gathered to measure their confidence when working with students with disability, according to the type of disability and the makeup of the physical education class in general. To examine this effect, quantitative research approaches designed to test objective theories by examining the relationships among variables was utilized (Creswell, 2012). These variables were measured using a survey and the resulting quantitative data analyzed using statistical methods. A survey is defined as a systematic method for gathering information from entities for the purposes of constructing quantitative descriptors of the attributes for the larger population of which the entities represent attributes of members (Groves et al., 2009).

Participants

A power analysis was performed to determine a proper sample size for this study. A cluster randomized trial design, Optimal Design, was used to conduct a power analysis for multilevel modeling. In this design, standardized data must be used because it is possible that data may be collected in different environments with different scales (e.g., mean of math scores in high schools located in Virginia) (Spybrook, Raudenbush, Liu, Congdon, & Martinez, 2006). Therefore, to use Optimal Design Software, it was necessary to calculate a standardized effect size (Spybrook et al., 2006). The equation for the standardized effect size was as follows:

$$\delta = \frac{\beta_1}{\sqrt{\tau + \sigma^2}}$$

δ = standardized effect size

β_1 = the mean difference between a treatment group and a control group

τ = the variation between clusters

σ^2= the variation within clusters

Figure 1. Optimal Design

The current study was assumed to have a target sample size of 24.76 participants per cluster (7 universities: level 2) (total N=173.32). This result was based on calculations assuming a cluster randomized trial design with the following criteria: large standardized effect size of .80, alpha level of .05, and power of .80.

Participant Selection. The participants in this study were selected from undergraduate students who are currently studying in adapted physical education teacher education programs and general physical education teacher education programs in Korea. Participants were recruited from undergraduate students in five APETE and two GPETE programs in Korea. There were 7 universities providing APETE program. However, two universities will be excluded because one APETE program is only a two-year program and the other has only a very small number of students. Furthermore, this study recruited two GPETE programs that systematically provided APE courses among dozens of Korea GPETE programs. First year students were excluded because they may not have had enough experience related to teaching students with disabilities in a physical education environment. First year students in APETE programs focus on general physical education and sports skills such as swimming and tennis, which meant the department typically provides few APE courses for 1st year students. It also should be noted that many 4th year

students are student teaching, so fewer 4th year students were still taking courses at their university compared to 2nd and 3rd year students. Four hundred surveys were distributed. Final sample size from the seven universities was 322. As a result, the response rate was 80.5%.

The researcher went to each university to give participants the survey. To increase response rate, the researcher went to each university and distributed surveys in targeted physical education or adapted physical education classes attended by qualified participants (e.g., 2nd to 4th year students enrolled in APETE or GPETE programs). Participants were instructed to read the informed consent form on the first page of the survey which included the nature of the study, what participants would do, time commitment, risks/benefits, and finally how to consent. Participants were then asked to either complete the survey or hand in a blank survey with the rest of the class. Due to the anonymous nature of the data, it was not possible for participants to withdraw from the study once they submitted their survey. As a result, the response rate was 80.5%.

Ninety participants in the GPETE programs successfully completed the survey. Among them, 52 (57.8 %) of the participants were in their second year, 26 (28.9%) in their third year, and 12 (13.3 %) in their fourth year. In the APETE programs, 86 (37.1%) of the participants were in their second year, 81 (34.9 %) in their third year, and 65 (28 %) in their fourth year. Regarding gender proportion, 70% of participants were male and 30% were female in GPETE, and 69.8% were male and 30.2% female in the APETE program (see table 3).

Table 3

The Number of Participants by Gender and Grade in each University

	Second year		Third year		Fourth year		Total
	Male	Female	Male	Female	Male	Female	
APETE 1	23	7	15	8	16	8	77
APETE 2	8	4	8	2	5	2	29
APETE 3	5	5	13	6	0	0	29
APETE 4	7	4	8	6	0	0	25
APETE 5	15	7	12	4	25	9	72
GPETE 1	9	9	6	1	0	2	27
GPETE 2	28	6	16	3	4	6	63
Total APPETE	58	27	56	26	46	19	232
Total GPETE	37	15	22	4	4	8	90

Instrument

The Self-Efficacy Scale for Physical Education Teacher Education Majors toward Children with Disabilities (*SE*-PETE-D), developed by Block et al. (2013), was used for this investigation. The SE-PETE-D included three different types of disabilities (intellectual, physical, and visual impairment) and three types of physical education class (fitness test, sport skills, and actual playing of a sport). Each type of disability has a section that provides a situation for respondents and each type of class has three or four questions. However, in Korea, only 2.4 % of students with blind and visual impairment was enrolled in educational environment (both special schools and general schools) (Ministry of Education, 2014). Because of small population of students with blind and visual impairment, Korean pre-service teachers did not have a lot of chances to teach or observe them in physical education classes. Therefore, the questionnaires related to them were removed. The 16 questions on the *SE*-PETE-D were scored using a 5-point Likert

scale (1 = no confidence, 2 = low confidence, 3 = confidence, 4 = moderate confidence, 5 = high confidence). Below is an example of a question and the scoring matrix:

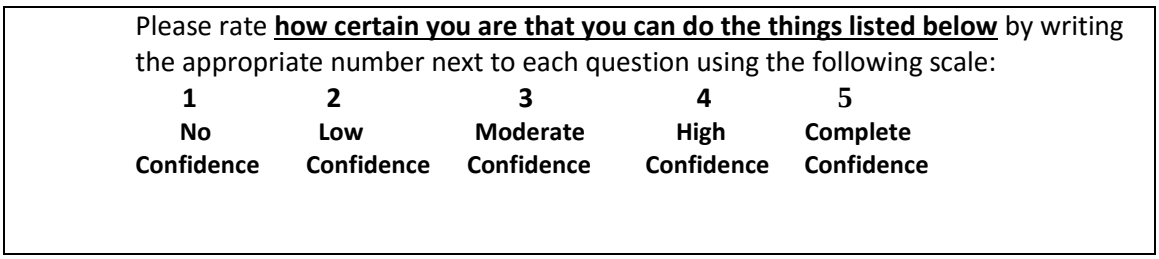

Figure 2. Score System of *SE*-PETE-D

In this study, self-efficacy scores were measured by the sum of all questionnaires in *SE*-PETE-D. Therefore, the highest possible score was 80 (16 questions with a high score of 5 on each question). As a result, a total score of 16 indicated 'No Confidence', 17-32 'Low Confidence', 33-48 'Moderate Confidence', 49-64 'High Confidence', and 67-80 'Complete Confidence'.

The Physical Educators' Self-Efficacy Toward Including Students with Disabilities–Autism (PESEISD-A) (Taliaferro, Block, Harris, & Krause, 2010) was also used for this investigation to gather data related to pre-service teachers' sources of self-efficacy scores. However, this instrument was specified to find the scores toward teaching only students with autism in GPE classes. Therefore, this study modified the instrument to find students with ID and PD. In addition, the questionnaires related to physiological states were removed. According to Usher and Pajares (2008), physiological states were evaluated by performances under differing conditions. However, Korean pre-service teachers were assumed that they were in stage to learn how to organize and manage inclusive physical education by taking academic courses and practicums rather than the stage to evaluate their teaching abilities under a variety of situation. The 18 questions were scored using a 6-point Likert scale.

The scores of sources of self-efficacy were measured by the sum of scores of questionnaires related to each source. Among the questionnaires of PESEISD-A, six questions were related to each mastery experiences and vicarious experiences, which meant that total scores (very successful) were 36, a score of approximately 30 meant 'Moderately successful', a score of approximately 24 indicated ' Somewhat successful', a score of approximately18 indicated 'Not very successful', a score of approximately 12 scores indicated 'Not at all successful', and a score of less than 6 indicated ' I do not have any experience doing this' (see below for scoring matrix).

I do not have any experience doing this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
1	2	3	4	5	6

Figure 3. Score System of Mastery and Vicarious Experiences in PESEISD-A

Regarding the questionnaires of social persuasion, six questions were related to each mastery experiences and vicarious experiences, which meant that total scores (very capable) were 36, a score of approximately 30 meant 'Moderately capable', a score of approximately 24 indicated ' both capable and not capable', a score of approximately18 indicated 'Not very capable', a score of approximately 12 scores indicated 'Not at all capable', and a score of less than 6 indicated ' I have not been told anything about my capabilities' (see below for scoring matrix).

I have not been told anything about my capabilities	Not at all capable	Not very capable	Both capable and not capable	Moderately capable	Very capable
1	2	3	4	5	6

Figure 4. Score System of Social Persuasion in PESEISD-A

Practical Experiences. Volunteer experiences are possible activities available to pre-service teachers in both the APETE and GPETE programs. The activity is not

required. Students usually work in local physical activity institutes for children and/or adults with disabilities. Furthermore, sports competitions such as national and international games for individuals with disabilities are also possible opportunities to work as a volunteer. Generally speaking, in the Korean model of pre-service volunteering is one day at one facility or one event. Therefore, in this study the frequency of participation in volunteer experiences was defined as a one-time experience as a volunteer in one event (e.g., camps and multiple days sports events).

In contrast, a campus-based practicum required a one semester or one-year commitment by the student. Some students could choose to participate in the campus-based after completing their required year depending on their intention. Students who participated more than two years become assistant manager in the practicum activity to support undergraduate students who participate for the first time.

Procedures

Translation. The survey was translated into Korean following the model outlined by Banville, Desroisiers, and Genet-Volet (2000). The procedure for translating the *SE*-PETE-D into Korean from English was as follows:

1. The English version was translated into Korean by three professionals who are native Korean speaking doctoral students majoring in adapted physical education at the University of Virginia and other universities in U.S.

2. Three bilingual (Korean and English) professors in the Department of Adapted Physical Education at Korea National Sport University were then given the Korean version without sight of the English version and asked to translate it back into English.

3. Next, the investigator and the other two professionals from the first step worked individually to translate the survey questionnaires into Korean and English and compared the original English version, the translated English versions, and the translated Korean versions.

4. The investigator and the four professionals determined the content validity after finishing the translation by determining the power of understanding, legibility, and readability of the questions translated into Korean.

5. 120 undergraduates majoring in Adapted Physical Education at Korea National Sports University then completed the Korean version of questionnaire in order to determine the value of Cronbach's alpha for the translated version of the survey questions.

Reliability of the Korean version. The coefficients using internal consistency were analyzed to validate the Korean *SE*-PETE-D version. The reliability of the Korean *SE*-PETE-D and PESEISD-A version were conducted by checking the value of each question's coefficient. Nunnally (1978) suggested that instruments used in academic research should have .70 or better reliability coefficients. Cronbach's alpha reliability of *SE*-PETE-D was high (ID = .846 and PD = .895) in this study. In addition, Cronbach's alpha reliability of PESEISD-A was high and moderate (master experiences = .846, vicarious experiences = .759, and social persuasion = .879) in this study.

Data collection. The investigator went to each university to meet the professors and administrators. They then distributed the survey questionnaires to the undergraduate students either in class. Participants were instructed to read the informed consent on the first page of the survey that described the nature of the study and outlined what

participants were asked to do and the time commitment, risks/benefits and, finally, how to consent. They then were asked to either complete the survey or hand in a blank survey with the rest of the class. Due to the anonymous nature of the data, it was possible for participants to withdraw from the study once they submit their survey.

***Sampling strategy*.** According to the data structure, a multi-site sampling technique was appropriate for census sampling. Multi-site sampling is a way to increase heterogeneity and representativeness (Haw et al, 1992). This sampling strategy selects clusters and individual are assigned in each cluster by random sampling (Fink, 1995). Therefore, in this study, the pre-service teachers (individual, level 1) were randomly assigned in universities (level 2) that were assigned first.

Data analysis. Multilevel modeling (MLM) was used to answer the research questions and sub-questions. The advantage of MLM is that it can be used to analyze multilevel data by taking cluster effects into account. Therefore, to analyze the effects of the type of course and practicum on pre-service teachers' self-efficacy toward inclusion physical education in the nested data, MLM was applied. In order to analyze the multilevel data, the statistical program, HLM 7 was utilized (Bryk, Raudenbush & Congdon, 2008).

Before using multilevel modeling, it was necessary to check its model fit in the sample. Intra-class Correlation Coefficient (ICC) is a measurement of how much correlatedness is in a hierarchical data set. Through this procedure, the sample had to be confirmed by being analyzed by multilevel modeling or not. The appropriate rage of ICC is between 0 and 1. If the value is 0, it does not need multilevel model because there is no

variability among the mean of self-efficacy scores, between-university variance, and within-university dependent.

The assumptions of the multilevel modeling were also checked. In multilevel modeling, normality can be checked by examining the level 1 and level 2 residuals (Raudenbush & Bryk, 2002). To find the level 1 normality, level 1's residual data was used. The test of normality was conducted by using the Shapiro-Wilk Test and skewness and kurtosis test. The same method was repeated for level 2 to check the normality assumption. The shape of the resulting histogram will be also considered.

To find the relationship between pre-service teachers' self-efficacy toward inclusion in physical education and the type of program (RQ 1), and the effect of sources of self-efficacy on pre-service teachers' self-efficacy toward inclusive physical education (RQ 4), a mean as outcomes model will be fitted to the data that has no level 1 predictor but does include a level 2 predictor (program) to predict estimated group outcomes score (Raudenbush & Bryk, 2002). This model predicts variations in the levels of self-efficacy using level 2 variables. Borrowing the notation used in Raudenbush & Bryk (2002), the model can be written as

$$y_{ij} = \beta_{0j} + r_{ij}$$
$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{PROGRAM}_{j}) + u_{0j}$$

y_{ij} = *the self-efficacy score for student i who attends university j.*

r_{ij} = *student i's deviation from his or her university mean.*

β_{0j} = *mean of self-efficacy in university j.*

γ_{00} = *mean of university self-efficacy means.*

γ_{01} = *the expected first university self-efficacy mean.*

u_{0j} = *the variance among university self-efficacy mean after controlling for program*

Figure 5. The Equation of Mean as Outcome model

To answer Sub RQ 1.1, RQ 3 and sub RQ 4.1 a random-coefficient model will be fitted to the data that has a level 1 predictor (the number of course), but no level 2 predictor to predict an estimated group outcomes score (Raudenbush & Bryk, 2002). This model predicts variations in the levels of self-efficacy using level 1 variables. Once again borrowing the notation used in Raudenbush & Bryk (2002), the model can be written as

$$y_{ij} = \beta_{0j} + \beta_{1j}(CREDITAP_{ij} - \overline{CREDITAP}_{.j}) + r_{ij}$$
$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + u_{1j}$$

y_{ij} *= the self-efficacy score for student i who attends university j.*

r_{ij} *= student i's deviation from his or her university mean.*

β_{0j} *= mean of self-efficacy in university j.*

γ_{00} *= mean of university self-efficacy means.*

u_{0j} *= the amount by which university j's self-efficacy mean differ from grand mean*

u_{1j} *= the amount by which university j's self-efficacy –APE credits slope differs from the mean of universities self-efficacy –APE credits slopes grand mean*

Figure 6. The Equation of Random-Coefficient Model

Next, an intercept and slope model will be fitted as outcomes models (Raudenbush & Bryk, 2002) to identify the effect of the type of curriculum on the relationship between self-efficacy and (a) the number of APE courses (Sub RQ 1.2), and (b) the type of practicum (RQ 2.1). Through these models, it will be possible to determine whether the effect of participation in each type of practicum (level 1 variable) depends on the curriculum (level 2 variable), as well as to examine how the amount of variance in the type of curriculum slopes is explained by the curriculum (Raudenbush & Bryk, 2002). The equation is as follows:

$$y_{ij} = \beta_{0j} + \beta_{1j}(CREDITAP_{ij} - \overline{CREDITAP}_{.j}) + r_{ij}$$
$$\beta_{0j} = \gamma_{00} + \gamma_{01}PROGRAM_{j} + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}PROGRAM_{j} + u_{1j}$$

y_{ij} = *the self-efficacy score for student i who attends university j.*

r_{ij} = *student i's deviation from his or her university mean.*

β_{0j} = *mean of self-efficacy in university j.*

γ_{00} = *mean of university self-efficacy means.*

γ_{01} = *the expected first university self-efficacy mean.*

γ_{10} = *the expected practicum-self-efficacy slope for APETE*

γ_{11} = *the expected practicum-self-efficacy slope for GPETE*

u_{0j} = *the random university effect for the university self-efficacy mean*

u_{1j} = *the random school effect for the APE credits-self-efficacy slope.*

Figure 7. The Equation of Intercept and Slope Model

The advantage of the quantitative research approach adopted for this study will be its ability to examine the relationship among variables. In this study, the relationships between the scores of self-efficacy and the type of courses will be analyzed, as well as the scores and practicums using individual scores (pre-service teachers' self-efficacy score) under group data (type of curriculum). Because of the characteristics of the data, this study will apply a multilevel modeling method to simultaneously analyze the variations of individual scores on the group variations**.**

CHAPTER 4

RESULTS

The purpose of this study was to explore and compare the effects of different types of Korean PETE training programs (GPETE vs. APETE) on the self-efficacy of pre-service physical education teachers toward inclusive physical education. In particular, this study examined: (1) the effect of the number of credits of special education and adapted physical education on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; (2) the effect of a campus-based practicum experience on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; and (3) the relationship between the number of classes taken within each program and the Korean pre-service physical education teachers' self-efficacy toward inclusive physical education.This chapter is organized into five sections: (a) descriptive statistics, (b) a critical assessment of the statistical assumptions, (c) an examination of the effect of credits of different courses (Research Question 1), (d) an examination of the effect of the number of credits of each type of course taken (Research Question 2), and (e) the effect of a campus-based practicum devoted toteaching students with disabilities (Research Question 3).

Descriptive Statistics

Participants (322) enrolled at seven different Korean universities were recruited for the study (n = 225 males, n = 97 females). The selection criteria consisted of the following: undergraduate students enrolled in either an (a) APETE program or a (b)

GPETE program. Among these participants, 232 were studying in five different university APETE programs, and 90 were enrolled in two different university GPETE programs. The average age of the students in the GPETE programs was *M* =21.87, SD =1.87, range = 20 to 31, and that of the students in the APETE programs was *M* =22. 85, SD = 1.97, range = 20 to 28. All the participants were in the second, third, or fourth year of their program. In the GPETE programs, 52 (57.8 %) of the participants were in their second year, 26 (28.9%) in their third year, and 12 (13.3 %) in their fourth year. In the APETE programs, 86 (37.1%) of the participants were in their second year, 81 (34.9 %) in their third year, and 65 (28 %) in their fourth year.

Three of the five APETE programs provided campus-based practicums as a requirement for graduation; the other two APETE programs and both GPETE programs did not provide relevant practicums for their undergraduate students. Because the practicum is not a requirement when students apply to the Korean national teacher certification exam, all university, both GPETE and APETE programs, do not have a responsibility to offer a practicum (Korea Ministry of Education, 2013). Overall, 57.5 % of the participants gained experience in teaching students with disabilities through practicums, with the remaining 43.5 % having no opportunity to teach these students as part of their program. However, 88.2% of the participants had volunteered to assist with some form of physical activity or sports for disabled youth outside their programs. In particular, 78.9% of the participants in GPETE reported volunteer experiences involving adapted physical activity or sports for the disabled. Tables below show basic data set with means and standard deviations by school and then by all APETE combined and GPETE combined.

Table 4 presents the descriptive statistics for each self-efficacy score for GPETE programs. Results of the descriptive statistics indicated that mastery experiences showed the highest score among sources of self-efficacy. However, participants in the GPETE programs showed lower scores of sources of self-efficacy, which divided by 18 questions was 2.20 (Not at all successful and Not at all capable) for an average score. Regarding self-efficacy scores, participants in the GPETE programs also showed very low score, which divided by 16 questions was 1.91 (Low Confidence) for an average score.

Table 4

Descriptive Statistics for each Self-Efficacy Scores for GPETE programs

GPETE			
Instrument	Item	Mean	*SD*
SE-PETE-D	Sum of ID	13.09	4.19
	Sum of PD	17.62	4.74
	Sum of *SE*-PETE-D	30.71	8.25
PESEISD-A	Sum of Master Experiences	14.11	2.52
	Sum of Vicarious Experiences	12.04	2.84
	Sum of Social Persuasion	13.14	3.05
	Sum of PESEISD-A	39.65	7.03

Table 5 presents the descriptive statistics for each self-efficacy score for participants in the APETE programs. Results of the descriptive statistics indicated that mastery experiences showed the highest score among sources of self-efficacy. However, participants in the APETE programs showed lower scores of sources of self-efficacy, which divided by 18 questions was 3.32 (Not very successful and Not very capable) for an

average score. Regarding self-efficacy scores, participants in the APETE programs also showed score between moderate and high confidence, which divided by 16 questions was 3.8 for an average score (recall that a score of 3 indicated moderate confidence while a score of 4 indicated high confidence).

Table 5

Descriptive Statistics for Self-Efficacy Scores for APETE programs

APETE			
Instrument	Item	Mean	*SD*
SE-PETE-D	Sum of ID	22.89	3.32
	Sum of PD	37.91	4.67
	Sum of *SE*-PETE-D	60.80	7.48
PESEISD-A	Sum of Master Experiences	20.97	4.06
	Sum of Vicarious Experiences	18.66	3.27
	Sum of Social Persuasion	20.26	3.99
	Sum of PESEISD-A	59.90	10.75

Table 6 presented the mean difference of self-efficacy and sources of self-efficacy for each university and program. Both mean scores of self-efficacy and sources of self-efficacy had a significant difference among universities (Table 7 and 8). APETE 1 had the highest mean scores of both instruments, and APETE 5 was the second highest mean scores of both instruments. On the other hand, GPETE 1 had the lowest mean score of self-efficacy. Furthermore, GPETE 2 had the lowest mean score of sources of self-efficacy. Through post-hoc tests (Table 9 and 10), among APETE programs, there was significant different mean of both self-efficacy and sources of self-efficacy between

APETE 1 and APETE 2, APETE1 and APETE 3, APETE 1 and APETE 4, APETE 2 and APETE 5. On the other hand, there was no significant difference between GPETE programs.

Table 6

Descriptive Statistics for Self-Efficacy and Sources of Self-Efficacy Mean Scores for each University and program

University	Self-Efficacy	Sources of Self-efficacy
APETE 1	61.83	62.24
	(14.16)	(14.32)
APETE 2	53.37	50.62
	(9.05)	(11.59)
APETE 3	52.65	49.89
	(7.55)	(10.44)
APETE 4	50.38	49.38
	(10.84)	(10.55)
APETE 5	60.80	59.90
	(7.48)	(10.75)
GPETE 1	29.40	41.96
	(8.94)	(7.58)
GPETE 2	31.56	38.66
	(7.95)	(6.60)
Total APETE	58.41	57.49
	(11.46)	(13.18)
Total GPETE	30.71	39.65
	(8.25)	(7.04)

Table 7

ANOVA Summary for Total Self-Efficacy Score among Universities

Source	SS	df	MS	F	p	Effect Size
Corrected Model	54047.942	6	9007.990	88.409	.000	.627
Intercept	568279.627	1	568279.627	5577.357	.000	.947
University	54047.942	6	9007.990	88.409	.000	.627
Error	32095.502	315	101.890			
Total	912787.000	322				
Corrected Total	86143.444	321				

$p < .05$

Table 8

ANOVA Summary for Sources of Self-efficacy among Universities

Source	SS	df	MS	F	p	Effect Size
Corrected Model	27336.306	6	4556.051	37.881	.000	.419
Intercept	612425.218	1	612425.218	5091.936	.000	.942
University	27336.306	6	4556.051	37.881	.000	.419
Error	37886.166	315	120.274			
Total	953050.000	322				
Corrected Total	65222.472	321				

$p < .05$

Table 9

Post-Hoc Test Summary for Total Self-Efficacy Score among Universities

(I)University	(J) University	Mean Difference (I-J)	Std. Error	p
APETE 1	GPETE 1	32.4321*	2.24313	.000
	APETE 2	8.4602*	2.18435	.002
	APETE 3	9.1843*	2.18435	.001
	APETE 4	11.4506*	2.63030	.000
	APETE 5	1.0395	1.61754	.995
	GPETE 2	30.5697*	1.69565	.000
GPETE1	APETE 1	-32.4321*	2.24313	.000
	APETE 2	-23.9719*	2.69948	.000
	APETE 3	-23.2478*	2.69948	.000
	APETE 4	-20.9815*	3.07153	.000
	APETE 5	-31.3926*	2.26545	.000
	GPETE 2	-1.8624	2.32186	.985
APETE 2	APETE 1	-8.4602*	2.18435	.002
	GPETE 1	23.9719*	2.69948	.000
	APETE 3	.7241	2.65084	1.000
	APETE 4	2.9904	3.02887	.957
	APETE 5	-7.4207*	2.20726	.015
	GPETE 2	22.1095*	2.26512	.000
APETE 3	APETE 1	-9.1843*	2.18435	.001
	GPETE 1	23.2478*	2.69948	.000
	APETE 2	-.7241	2.65084	1.000
	APETE 4	2.2663	3.02887	.989
	APETE 5	-8.1448*	2.20726	.005
	GPETE 2	21.3853*	2.26512	.000
APETE 4	APETE 1	-11.4506*	2.63030	.000
	GPETE 1	20.9815*	3.07153	.000
	APETE 2	-2.9904	3.02887	.957
	APETE 3	-2.2663	3.02887	.989
	APETE 5	-10.4111*	2.64936	.002
	GPETE 2	19.1190*	2.69776	.000
APETE 5	APETE 1	-1.0395	1.61754	.995
	GPETE 1	31.3926*	2.26545	.000
	APETE 2	7.4207*	2.20726	.015

	APETE 3	8.1448*	2.20726	.005
	APETE 4	10.4111*	2.64936	.002
	GPETE 2	29.5302*	1.72506	.000
GPETE 2	APETE 1	-30.5697*	1.69565	.000
	GPETE 1	1.8624	2.32186	.985
	APETE 2	-22.1095*	2.26512	.000
	APETE 3	-21.3853*	2.26512	.000
	APETE 4	-19.1190*	2.69776	.000
	APETE 5	-29.5302*	1.72506	.000

p< .05

Table 10

Post-Hoc Test Summary for Sources of Self-Efficacy Score among Universities

(I)University	(J) University	Mean Difference (I-J)	Std. Error	p
APETE 1	GPETE 1	20.2840	2.43710	.000
	APETE 2	11.6262	2.93291	.000
	APETE 3	12.3504	2.93291	.000
	APETE 4	12.8580	3.33713	.000
	APETE 5	2.3402	2.46135	.837
	GPETE 2	23.5802	2.52263	.000
GPETE1	APETE 1	-20.2840	2.37323	.000
	APETE 2	-8.6577	2.93291	.052
	APETE 3	-7.9336	2.88006	.100
	APETE 4	-7.4259	3.29078	.285
	APETE 5	-17.9437	2.39813	.000
	GPETE 2	3.2963	2.46099	.849
APETE 2	APETE 1	-11.6262	2.37323	.000

	GPETE 1	8.6577	2.93291	.052
	APETE 3	.7241	2.88006	1.000
	APETE 4	1.2318	3.29078	1.000
	APETE 5	-9.2860	2.39813	.002
	GPETE 2	11.9540	2.46099	.000
APETE 3	APETE 1	-12.3504	2.85775	.000
	GPETE 1	7.9336	3.33713	.100
	APETE 2	-.7241	3.29078	1.000
	APETE 4	.5077	3.29078	1.000
	APETE 5	-10.0101	2.87846	.001
	GPETE 2	11.2299	2.93104	.000
APETE 4	APETE 1	-12.8580	1.75741	.000
	GPETE 1	7.4259	2.46135	.285
	APETE 2	-1.2318	2.39813	1.000
	APETE 3	-.5077	2.39813	1.000
	APETE 5	-10.5178	2.87846	.006
	GPETE 2	10.7222	1.87423	.005
APETE 5	APETE 1	-2.3402	1.84227	.837
	GPETE 1	17.9437	2.52263	.000
	APETE 2	9.2860	2.46099	.002
	APETE 3	10.0101	2.46099	.001
	APETE 4	10.5178	2.93104	.006
	GPETE 2	21.2400	1.87423	.000
GPETE 2	APETE 1	-23.5802	2.43710	.000

	GPETE 1	-3.2963	2.93291	.849
	APETE 2	-11.9540	2.93291	.000
	APETE 3	-11.2299	3.33713	.000
	APETE 4	-10.7222	2.46135	.005
	APETE 5	-21.2400	2.52263	.000

$p < .05$

Table 11 and 13 show descriptive statistics for self-efficacy scores and sources of self-efficacy for each university and program by grade. APETE programs had a higher self-efficacy mean scores than GPETE mean scores by grade. In particular, each university sharply increased the mean scores in the third year. On the other hand, there were non-significant differences between mean scores of third and fourth year for both programs. To present the mean difference between grade for both programs, post-hoc tests were examined (Table 12 and 14). Figure 8 and 9 represented a self-efficacy and sources of self-efficacy score slope across grade.

Table 11

Descriptive Statistics for Self-Efficacy Scores for each University and Program by Grade

	Second year	Third year	Fourth year
APETE 1	52.10 (13.71)	67.11 (11.02)	68.08 (11.25)
APETE 2	51.08 (10.30)	56.00 (9.43)	53.57 (5.65)
APETE 3	51.10 (7.49)	53.47 (7.66)	none
APETE 4	47.90 (9.94)	58.16 (7.63)	none
APETE 5	56.72 (6.92)	62.73 (6.92)	62.35 (7.29)
GPETE 1	24.38 (6.26)	39.57 (2.93)	39.00 (0.00)
GPETE 2	26.26 (5.31)	38.36 (6.62)	34.80 (5.41)

Total APETE	52.24 (10.93)	60.85 (10.37)	63.52 (9.76)
Total GPETE	25.61 (5.66)	38.69 (5.82)	35.50 (5.16)

Table 12

Post-Hoc Test Summary for Self-Efficacy Score for each Program by Grade

Program	Grade (I)	Grade (J)	Mean Difference (I-J)	Std. Error	p
APETE	2	3	-8.6077	1.61390	.000
		4	-11.2789	1.71314	.000
	3	2	8.6077	1.61390	.000
		4	-2.6712	1.73575	.275
	4	2	11.2789	1.71314	.000
		3	2.6712	1.73575	.275
GPETE	2	3	-13.0769	1.35796	.000
		4	-9.8846	1.81062	.000
	3	2	13.0769	1.35796	.000
		4	3.1923	1.97307	.244
	4	2	9.8846	1.81062	.000
		3	-3.1923	1.97307	.244

p< .05

Table 13

Descriptive Statistics for Sources of Self-Efficacy Scores for each University by Grade

	Second year	Third year	Fourth year
APETE 1	51.50	67.81	69.41
	(12.81)	(11.91)	(11.01)
APETE 2	46.16	54.30	53.00
	(10.68)	(12.30)	(11.05)
APETE 3	45.30	52.32	none
	(5.77)	(11.63)	
APETE 4	45.82	58.16	none
	(6.89)	(11.26)	
APETE 5	54.91	61.68	62.14
	(8.50)	(10.49)	(11.36)
GPETE 1	39.17	47.14	49.00
	(7.26)	(5.33)	(1.41)
GPETE 2	34.47	44.37	42.10
	(4.28)	(5.59)	(4.77)
Total APETE	50.00	60.36	63.84
	(10.68)	(12.69)	(12.16)
Total GPETE	36.09	45.11	43.25
	(5.87)	(5.56)	(5.10)

Table 14

Post-Hoc Test Summary for Sources of Self-Efficacy Score for each Program by Grade

Program	Grade (I)	Grade (J)	Mean Difference (I-J)	Std. Error	p
APETE	2	3	-10.3580	1.83194	.000
		4	-13.8462	1.94458	.000
	3	2	10.3580	1.83194	.000
		4	-3.4881	1.97025	.182
	4	2	13.8462	1.94458	.000
		3	3.4881	1.97025	.182
GPETE	2	3	-9.0192	1.36783	.000
		4	-7.1538	1.82378	.001
	3	2	9.0192	1.36783	.000
		4	1.8654	1.98742	.617
	4	2	7.1538	1.82378	.001
		3	-1.8654	1.98742	.617

$p < .05$

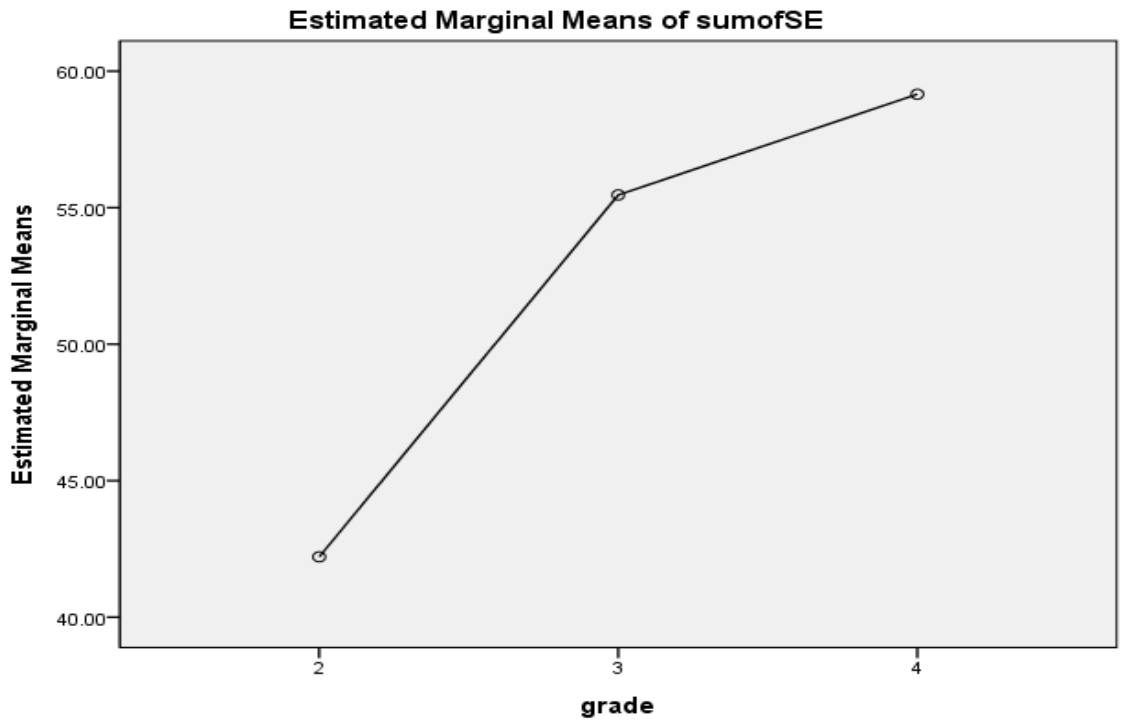

Figure 8. Self-Efficacy Score Slope across Grade

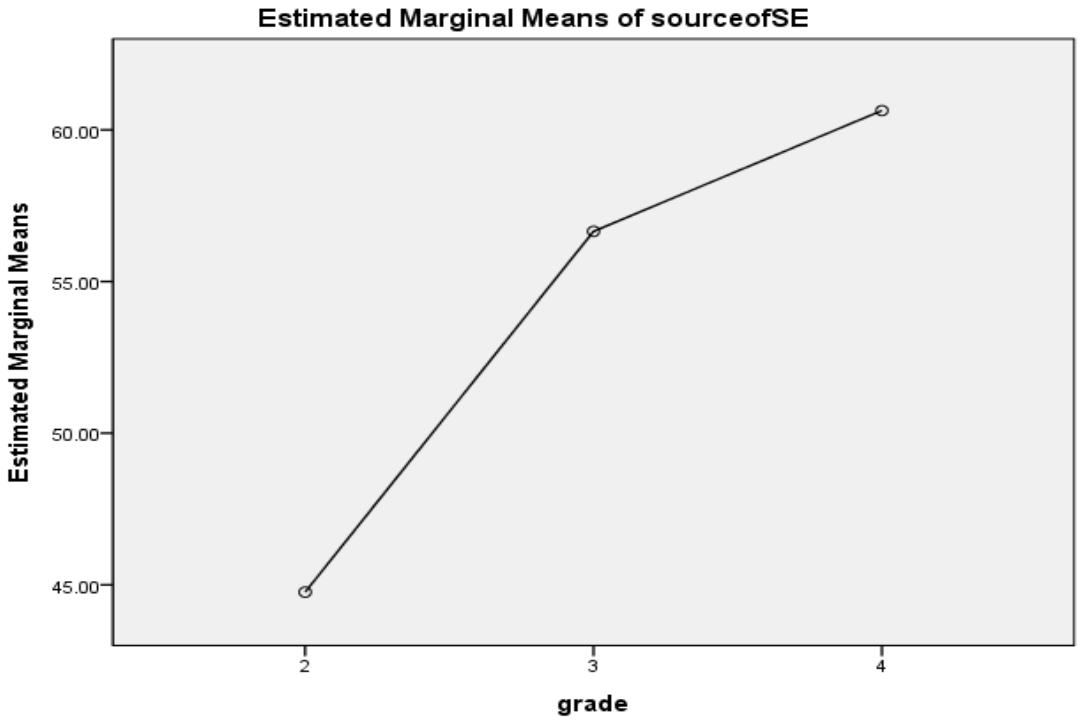

Figure 9. A Self-Efficacy Score Slope across Grade

Table 15 represented mean scores of self-efficacy and sources of self-efficacy by gender. However, there was no significant difference between gender in either the APETE or GPETE programs. Table 16 and 17 were the tables that showed ANOVA summary for self-efficacy and sources of self-efficacy by gender.

Table 15

Mean Scores of Self-Efficacy and Sources of Self-Efficacy by Gender

	Self-Efficacy		Sources of Self-Efficacy	
	Male	Female	Male	Female
APETE 1	62.36 (13.51)	60.58 (15.85)	62.17 (13.82)	62.41 (15.74)
APETE 2	52.95 (9.81)	54.50 (7.11)	50.14 (12.66)	51.87 (8.75)
APETE 3	55.11 (6.47)	48.64 (7.74)	52.67 (11.56)	45.36 (6.48)
APETE 4	47.91 (10.88)	54.28 (10.32)	46.81 (7.69)	53.43 (13.62)
APETE 5	61.07 (7.46)	60.05 (7.67)	60.61 (11.42)	57.95 (8.62)
GPETE 1	32.20 (8.92)	25.92 (7.98)	44.53 (7.66)	38.75 (6.41)
GPETE 2	30.87 (8.47)	32.53 (6.04)	38.31 (6.91)	39.80 (5.59)
Total APPETE	58.92 (11.23)	57.22 (11.95)	57.98 (13.27)	56.35 (13.00)
Total GPETE	31.19 (8.53)	29.59 (7.60)	39.79 (7.52)	39.65 (5.87)

Table 16

ANOVA Summary for Self-Efficacy by Gender

Source	SS	df	MS	F	p	Effect Size
Corrected Model	139.799	1	139.799	1.065	.303	.005
Intercept	659403.075	1	659403.075	5023.225	.000	.956
Gender	139.799	1	139.799	1.065	.303	.005
Error	30192.300	230	131.271			
Total	821839.000	232				
Corrected Total	30332.099	231				

$p < .05$

Table 17

ANOVA Summary for Sources of Self-Efficacy by Gender

Source	SS	df	MS	F	p	Effect Size
Corrected Model	129.949	1	129.949	.746	.389	.003
Intercept	639083.914	1	639083.914	3670.690	.000	.941
Gender	129.949	1	129.949	.746	.389	.003
Error	40044.047	230	174.105			
Total	807109.000	232				
Corrected Total	40173.996	231				

$p < .05$

Table 18 represented self-efficacy mean score by the number of credits of APE. In the table, the mean score sharply increased the point between 5~15 credits and 16~25 credits. Figure 10 showed self-efficacy score slope across the number of APE credits. In addition, table 19 and 20 represented the frequency by school and grade for the number

of APE credits, and frequency by program and grade for the number of APE credits

Table 18

Self-Efficacy Scores depending on the Number of Credits of APE

Credit of APE	Mean	*SD*	N
Under 5 credits	31.34	7.63	44
5~15 credits	38.17	13.65	75
16~25 credits	53.58	11.08	112
26~35 credits	64.66	8.06	61
Above 35 credits	71.92	5.64	30

Table 19

Descriptive statistics by school and grade for the number of APE credits

University	Grade	Categorized APE Credits					Total
		1	2	3	4	5	
APETE 1	2		13	17			30
	3		3	8	9	3	23
	4			5	14	5	24
GPETE 1	2	18					18
	3	6	1				7
	4	2					2
APETE 2	2		4	7	1		12
	3			7	2	1	10
	4			2	1	4	7
APETE 3	2		3	7			10
	3		1	15	3		19
	4						none
APETE 4	2		3	8			11
	3		1	9	4		14
	4						none
APETE 5	2		1	16	5		22
	3			2	8	6	16
	4			9	14	11	34
GPETE 2	2	8	26				34
	3	8	11				19
	4	2	8				10

Table 20

Descriptive statistics by program and grade for the number of APE credits

University	Grade	Categorized APE Credits					Total
		1	2	3	4	5	
APETE	2		24	55	6		85
	3		5	41	26	10	82
	4			16	29	20	65
GPETE	2	26	26				52
	3	14	12				26
	4	4	8				12

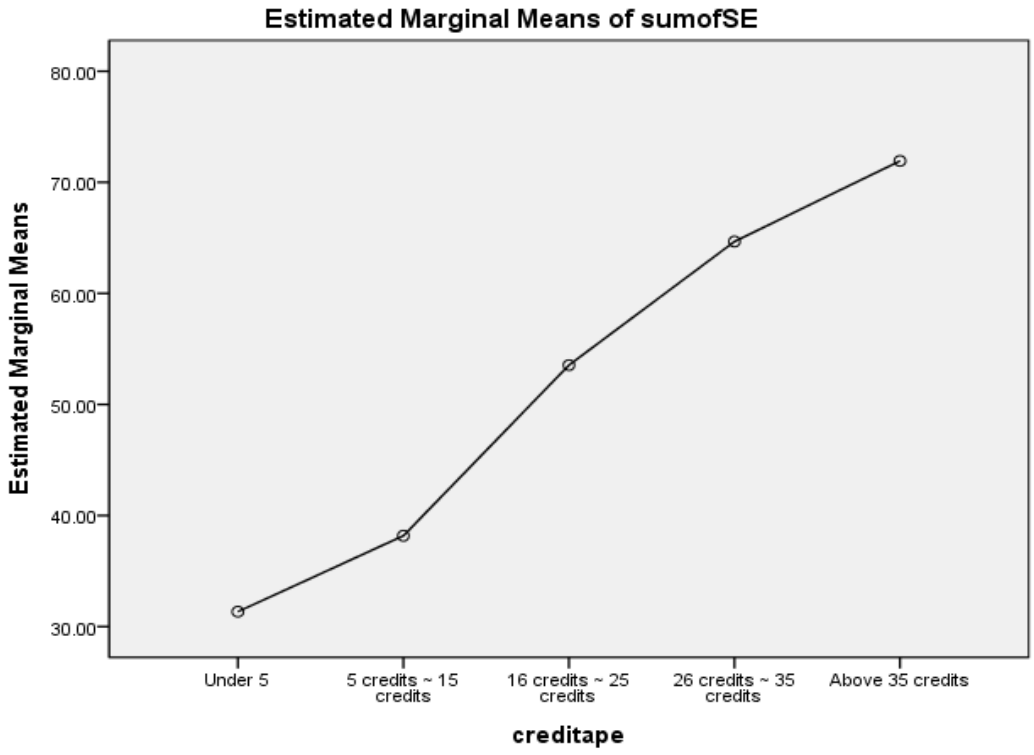

Figure 10. A Self-Efficacy Score Slope across the Number of APE Credits

Table 21 represented self-efficacy mean score by the number of credits of special education. Recall that this question was presented in categories (under 10 credits, 10-20 credits, 21-30 credits, 31-40 credits, and above 40 credits). In the table, the mean score sharply increased the point between under 10 credits and 10~20 credits. In addition, table 22 and 23 represented the frequency by school and grade for the number of special education credits, and frequency by program and grade for the number of special education credits. Figure 11 showed self-efficacy score slope across the number of special education credits.

Table 21

Self-Efficacy Scores depending on the Number of Credits of Special Education

Credit of SPE	Mean	*SD*	N
Under 10 credits	30.71	8.25	90
10~20 credits	51.62	9.14	112
21~30 credits	63.30	7.83	58
31~40 credits	71.28	5.59	62
Above 40 credits	none	none	none

Table 22

Descriptive statistics by school and grade for the Number of Credits of Special Education

University	Grade	Categorized Special Education Credits					Total
		1	2	3	4	5	
APETE 1	2		29	1			30
	3		8	12	3		23
	4			9	15		24
GPETE 1	2	18					18
	3	7					7
	4	2					2
APETE 2	2		10	1	1		12
	3		6	3	1		10
	4		3	3	1		7
APETE 3	2		10				10
	3		16	3			19
	4						none
APETE 4	2		10	1			11
	3		4	10			14
	4						none
APETE 5	2		14	6	2		22
	3		2	1	13		16
	4			8	26		34
GPETE 2	2	34					34
	3	19					19
	4	10					10

Table 23

Descriptive statistics by program and grade for the Number of Credits of Special Education

University	Grade	Categorized APE Credits					Total
		1	2	3	4	5	
APETE	2		73	9	3		85
	3		36	29	17		82
	4		3	20	42		65
GPETE	2	52					52
	3	26					26
	4	12					12

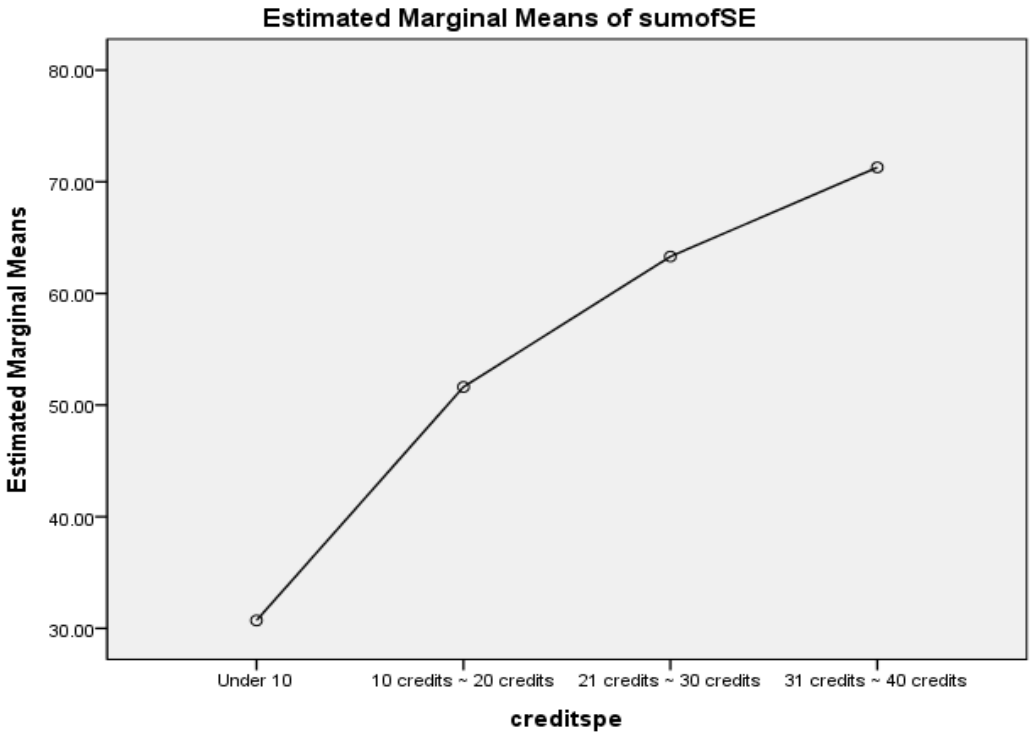

Figure 11. A Self-Efficacy Score Slope across the Number of Special Education Credits

Checking the Statistical Assumptions

Prior to conducting the data analysis, the data were examined for missing values. The two primary dependent variables of this study (the *SE*-PETE-D scores and the source of self-efficacy questionnaires scores) were also examined to test their statistical assumptions.

Outliers

A multivariate outlier analysis was conducted for each of the seven universities on the combined dependent variable for three areas: intellectual disability (ID), physical disability (PD) and sources of self-efficacy. The Mahalanobis distance is a widely accepted criterion for identifying outliers in multivariate data (Penny, 1996). In this data set, the value of the degree of freedom is three, and the critical value of χ^2 (3) with .001 is 16.3, which means that individuals with scores above 16.3 of the average value were deemed outliers. The Mahalanobis distance revealed no multivariate outliers in any of the participants' data, so after this multivariate outlier analysis procedure the total working sample size remained 322.

Normality

In multilevel modeling, normality needs to be checked usinglevel-1 and level-2 residuals (Raudenbush & Bryk, 2002). Skewness and kurtosis for the content knowledge test were examined. For the *SE*-PETE-D scores, both the skewness and kurtosis values for level-1 residuals fell within acceptable limits (<1.0). Therefore, the normality of both at level-1 did not violate the normality assumption (skewness = -.527, kurtosis = .623). However, the kurtosis values of level-2 were slightly above the acceptable limits (skewness = -.804, kurtosis= - 1.043), which indicates that the level of kurtosis was

moderate (< 1.5), although a visual inspection of the histograms suggested a reasonably normal distribution. In the questionnaires related to sources of self-efficacy, the results indicated that skewness and kurtosis for both level-1 and level-2 were within the acceptable limits (level-1: skewness = .056, kurtosis = -.115, level-2: skewness = .126, kurtosis = -.870). Therefore, normality was not violated for the *SE*-PETE-D and questionnaires for sources of self-efficacy.

Intraclass Correlation Coefficient(ICC)

To test the adequacy of the multilevel modeling with this sample, the Intraclass Correlation Coefficient was checked. Intraclass Correlation Coefficient (ICC) is a measurement of how much correlatedness there is between the level-1 and level-2 variances in a hierarchical data set (Raudenbush & Bryk, 2002). In this data set, the intraclass correlation coefficient represents the ratios of the outcome variances (the *SE*-PETE-D and sources of self-efficacy questionnaires) between the level-two units (universities). To compute the ICC, a fully unconditional model was fitted. The value of the ICC from the model was .48, which indicates that 48% of the response variable variation was present at level-2 (universities). The appropriate range of ICC is between 0 and 1 (Raudenbush & Bryk, 2002); if the value is 0 a multilevel model is not required because there is no variability among the self-efficacy scores, between-universities variance and within-universities dependent variables. However, as this model had an ICC greater than 0, the data in this study is appropriate for a multilevel model. The values of ICC for the models for the research questions are shown below. An ICC value ranging from 0.10 and 0.25 is common for educational research and for social science research it is generally between 0.0 and 0.4, which indicates that the data gathered for this study had

a relatively large ICC value (Snijders & Bosker, 2012).

Fully Unconditional Model (FUM)

The value of ICC in the fully unconditional model was determined to be .59, confirming that this model is suitable for multilevel modeling. This model had estimated identical coefficients (γ_{00} = 48.55, *S.E* = 4.61, $p < .001$ and, τ_{00}=145.73, $p<.001$), yielding a mean value for the grand self-efficacy scores of 48.55. The results also indicate that the means of the self-efficacy scores were significantly different for individuals and universities. Furthermore, $\tau_{00}$was greater than zero, demonstrating a significant variance among the university-self-efficacy means. The self-efficacy scores vary significantly across universities and the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [39.51, 57.58]. The fully unconditional model results are presented in Table 24.

Table 24

Parameter Estimates for the Fully Unconditional Model

Fixed effects	Coefficient	S.E	df	*t*-ratio
Intercept (γ_{00})	48.547624**	4.609248	6	10.533
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	145.73327**		6	531.29735
Level-1 effect (σ^2)	103.19144			

*$p < .05$; **$p < .01$.

Results of Multilevel Modeling

RQ1: Is there an effect due to the type of coursework selected by institutes (APETE program: adapted physical education teacher education and GPETE program: general physical education teacher education) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

To analyze the effect of coursework on pre-service physical education teachers' self-efficacy scores toward inclusive physical education, 322 undergraduate students (APETE: 232, GPETE: 90) completed the *SE*-PETE-D survey and sources of self-efficacy questionnaires.

A mean-as-outcome model was conducted to answer RQ 1. The value of ICC in this model was determined to be.13, corresponding to a variation of 13% in the response variable at level-2 (universities). Therefore, this model was suitable for multilevel modeling. The MLM shown in the mean-as-outcome model estimated identical coefficients (γ_{00}=30.41, *S.E* = 2.74, p < .001, and γ_{01} = 25.86, *S.E* = 3.24, *p*= .001), yielding self-efficacy mean scores for the GPETE program of 30.40 and for the APETE program of 56.27 from the sum of γ (γ_{00} +γ_{01}) (Figure 13).These results indicate that the type of program had a significant effect on the pre-service PE teachers' self-efficacy toward inclusive physical education. Furthermore, the results also showed that the effect of the type of program on pre-service physical education teachers' self-efficacy toward inclusive physical education did vary significantly across universities after controlling for the type of program (τ_{00}=3.51, χ^2 (5) = 50.12, *p*<.001). Not only did the self-efficacy means vary significantly across universities, but the mean of the self-efficacy scores was

also significantly different among universities by programs. Proportion of variance explained (PVE), like R^2 in the multiple regression analysis, provides information on "how much of the variability of the dependent variable is accounted for by the linear regression on the explanatory variables" (Snijders & Bosker, 2012, p.109). The value of PVE (0.92) in this model indicates that the type of program explained 92% of the variance among self-efficacy scores means.

One of the primary differences between single analysis and multilevel modeling is to estimate more effect of either a fixed effect (level 1) that has only a single value or a random effect that indicates the variation between nested units (level 2) (Hayes, 2006). Through single level analysis, a self-efficacy mean score of GPETE was 30.71, and a mean score of APETE was 60.80. However, through multilevel modeling, a mean score of 30.40 for GPETE showed 'Low Confidence', which divided by 16 questions was 1.9 for an average score. A mean score of 56.27 for APETE was between 'Moderate Confidence' and ‘High Confidence’, which divided by 16 questions was 3.52 for an average score. Therefore, participants in the GPETE programs did not show a high level of self-efficacy score, while participants in the APETE programs showed a moderate and high level of self-efficacy toward inclusive physical education. The means as outcome model results are presented in Table 25.

Please rate **how certain you are that you can do the things listed below** by writing the appropriate number next to each question using the following scale:

1	2	3	4	5
No Confidence	**Low Confidence**	**Moderate Confidence**	**High Confidence**	**Complete Confidence**

Figure 12. Score System of SE-PETE-D

Table 25

Parameter Estimates for the Mean as Outcome Model

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	30.405088**	2.736686	5	11.110
Intercept 2 (γ_{01})	25.863472 **	3.246622	5	7.966
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	12.32668**		5	50.11550
Level-1 effect (σ^2)	103.18516			

*p< .05, **p< .01.

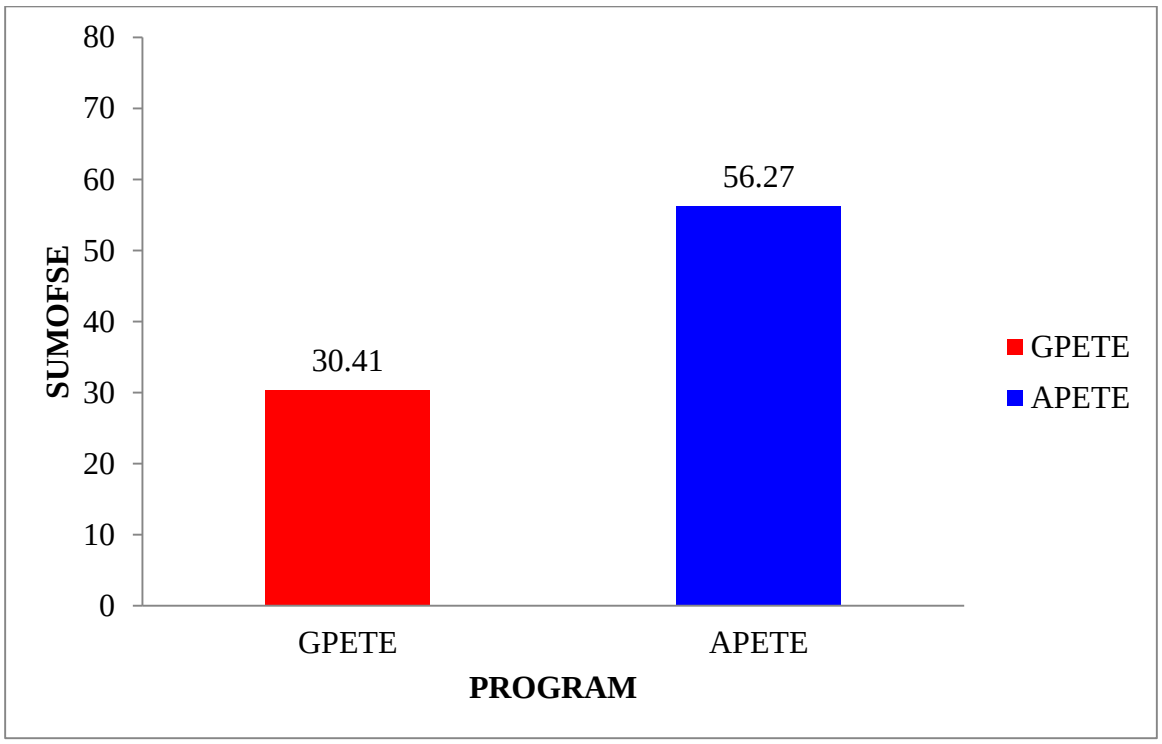

Figure 13. The mean difference in the self-efficacy scores (SUMOFSE) for GPETE (0) and APETE (1) by department

Sub RQ 1.1: If the answer to RQ1 is "yes", does the number of credits taken (adapted physical education and special education) influence the level of individual pre-service physical educators' self-efficacy toward inclusive physical education?

A random-coefficient model was fitted to examine the relationship between the number of credits of specialized courses related to teaching students with disabilities physical education and the pre-service physical education teachers' self-efficacy toward inclusive physical education.

The Effect of the Number of APE Credits

To analyze the effect of the number of APE credits, the APE credits gained by the pre-service undergraduate students in both programs were added to the level 1 equation. The value of ICC in this model was determined to be .69, which means that 69% of the response variable variation was present at level-2 (universities). Therefore, this model was again deemed suitable for multilevel modeling. The results for the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.61, $S.E$ = 4.60, p< .001); the grand mean self-efficacy of 48.61 indicates that the number of APE credits did indeed have a significant effect on the pre-service PE teachers' self-efficacy toward inclusive physical education; the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [39.53, 57.57]. Furthermore, these results also showed a significant average self-efficacy slope (γ_{10} =5.69, $S.E$ = 2.01, p =.030) (Figure 14). The regression slope indicates that the self-efficacy scores increased as the number of APE credits increased: each credit of APE was associated with a 5.69 point increase in self-efficacy scores, on average. The results showed a significant variance among the universities' self-efficacy means (τ_{00}= 146.29, χ^2 (6) = 818.67, p<.001), and

there was also a significant variance among the schools' APE credits-self-efficacy slopes (τ_{01}= 22.95, χ^2 (6) = 66.09, p< .001).The value of PVE (.35) in this model indicates that the number of APE credits explained 35% of the variance among self-efficacy mean scores, so the number of APE credits had a significantly positive effect on improving the pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (APE) results are presented in Table 26.

Table 26

Parameter Estimates of the Random-coefficient Model (APE)

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	48.614859**	4.601453	6	10.565
Intercept 2 (γ_{10})	5.690383*	2.013782	6	2.826
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	146.28500**		6	818.67068
CREDITAP slope (τ_{11})	22.95212**		6	66.09106
Level-1 effect (σ^2)	66.85953			

*p< .05; **p< .01.

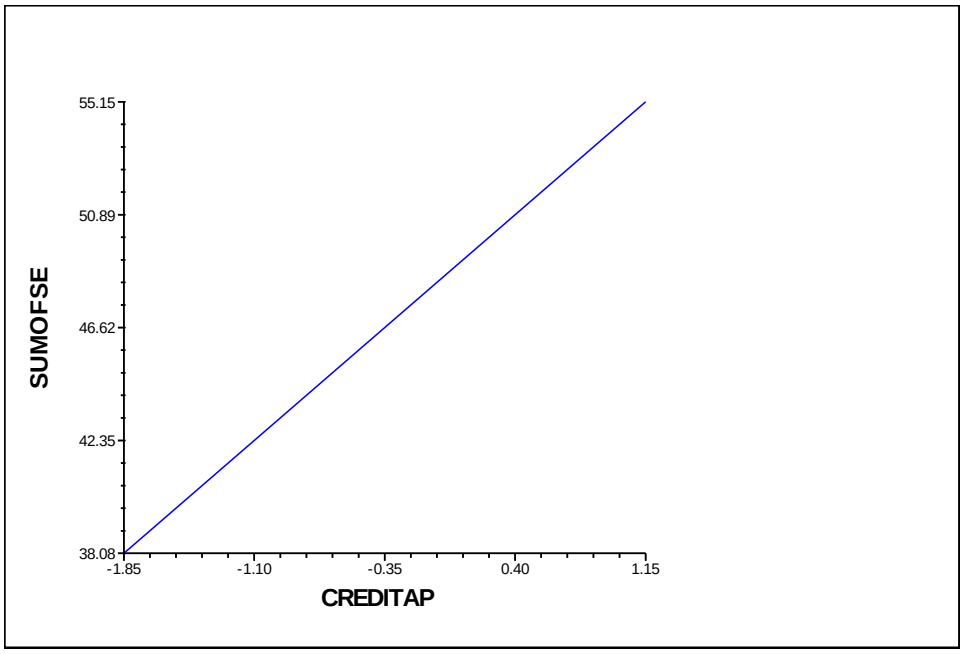

Figure 14. The relationship between self-efficacy scores (SUMOFSE) and the number of APE credits taken (CREDITAP)

The Effect of the Number of SPE Credits

The value of ICC in this model was determined to be .70, indicating that 70% of the response variable variation was present at level-2 (universities) and the model was suitable for multilevel modeling. The results of the random-coefficient model showed a significantly non-zero mean of self-efficacy score (γ_{00} = 48.53, *S.E* = 4.60, p< .001); the grand mean self-efficacy was thus 48.53 and the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [39.52, 57.55]. There was also a significant average self-efficacy slope (γ_{10} = 12.72, *S.E* = 1.70, p<.001) (Figure 15). The regression slope indicates that the self-efficacy scores increased as the number of special education credits increased, with each credit of APE taken being associated with a 12.72 point increase in self-efficacy score, on average. In addition, the results also revealed a

significant variance among the universities' self-efficacy means (τ_{00}= 146.50, χ^2 (4) = 413.62, p<.001), and there was also a significant variance among the school SPE credits-self-efficacy slopes (τ_{01}= 12.77, χ^2 (4) = 28.23, p< .001). These results demonstrate that the number of SPE credits had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The value of PVE (.38) indicates that the number of SPE credits explained 38% of the variance among the self-efficacy score means, hence the number of special education credits had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (SPE) results are presented in Table 27.

Table 27

Parameter Estimates of the Random-coefficient Model (SPE)

Fixed effects	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	48.532663**	4.603431	6	10.543
Intercept 2 (γ_{10})	12.715799**	1.700871	6	7.476
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	146.49848**		4	413.62300
CREDITSP slope (τ_{11})	12.76848**		4	28.22892
Level-1 effect (σ^2)	63.84089			

*p< .05; **p< .001.

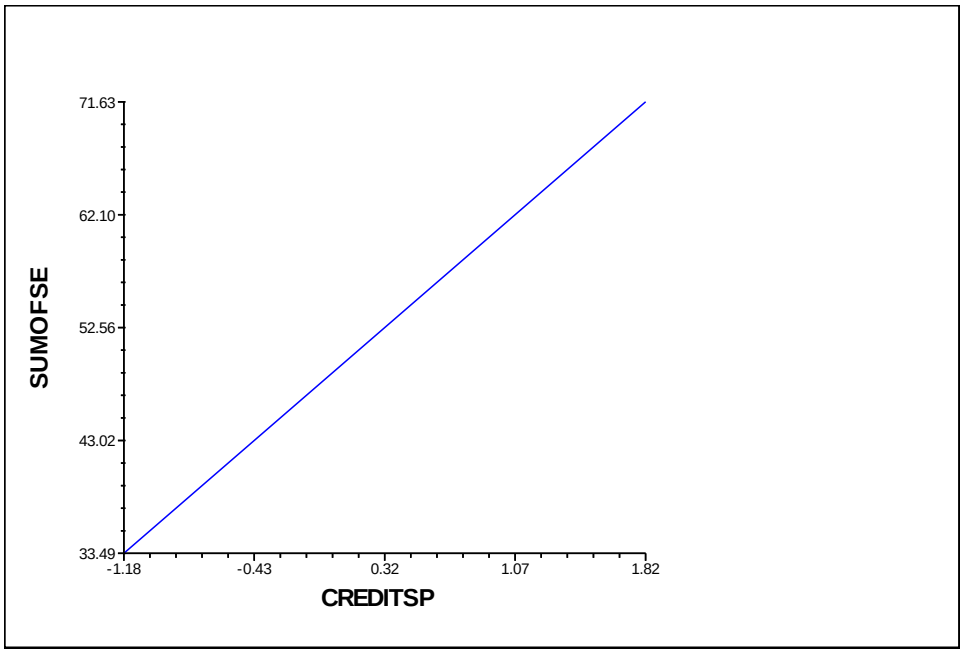

Figure 15. The relationship between self-efficacy scores (SUMOFSE) and the number of SPE credits taken (CREDITSP)

RQ 2: What type of curriculum is most effective in maximizing the effect of an APE credits on pre-service physical educators' self-efficacy toward inclusive physical education in both programs?

An intercept and slope model was examined to identify the type of curriculum that is most effective in maximizing the effect of an APE credits on pre-service physical educators' self-efficacy toward inclusive physical education in both programs. This model included the number of credits of APE course undergraduate students have taken as level 1 predictors. Unlike the random coefficient model, this model also includes a level 2 predictor. In this model, the type of program was included as a level 2 predictor.

The value of ICC in this model was determined to be .17, showing that 17% of the response variable variation is present at level-2 (universities). Therefore, this model was

again suitable for multilevel modeling. The MLM shown in the intercept and slope model estimated identical coefficients (γ_{00} = 30.34, *S.E* = 2.76, $p < .001$, and γ_{01} = 25.72, *S.E* = 3.27, $p < .001$), so the situational self-efficacy mean score for GPETE programs was 30.34, and for APETE programs was 56.06. The results of the intercept and slope model in GPETE programs was not significant, with an average self-efficacy slope (γ_{10} =- 2.42, *S.E* = 2.12, p =.304), although the regression slope of APETE was significantly positive (γ_{11}=11.68, *S.E* = 2.38, p=.004) (Figure 16). In the APETE programs, the slope ($\gamma_{10}+\gamma_{11}$) indicates that the self-efficacy scores increased as the number of APE credits increased, with every credit of APE taken being associated with a 9.26 points increase in the self-efficacy scores, on average. In addition, these results also showed a significant variance among the universities' self-efficacy means (τ_{00}= 13.48, χ^2 (5) = 80.29, $p<.001$), as well as a significant variance among school APE credits-self-efficacy slopes (τ_{01}= 2.73, χ^2 (5) = 15.93, p= .007) (Figure 17). The value of the PVE intercept (0.91) in this model indicates that the type of program explained 91% of the variance among universities' self-efficacy means. Furthermore, the value of the PVE slope (0.87) showed that the type of program explains 87% of the variance among university APE- self-efficacy slopes. These results demonstrate that APETE programs were more effective in maximizing the effect of an APE credits on pre-service physical educators' self-efficacy toward inclusive physical education. The results for the intercept and slope model (APE by programs) are presented in Table 28.

Table 28

Parameter Estimates for the Intercept and Slope Model (APE by programs)

Fixed effects	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	30.341458**	2.757576	5	13.172
DEPARTME (γ_{01})	25.752850**	3.268725	5	8.400
Intercept 2 (γ_{10})	-2.426347	2.117813	5	-1.146
DEPARTME (γ_{11})	11.682737*	2.381883	5	4.905
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	13.47862**		5	80.29227
CREDIT slope (τ_{11})	2.72557*		5	15.93870
Level-1 effect (σ^2)	66.64653			

*p< .05; **p< .001.

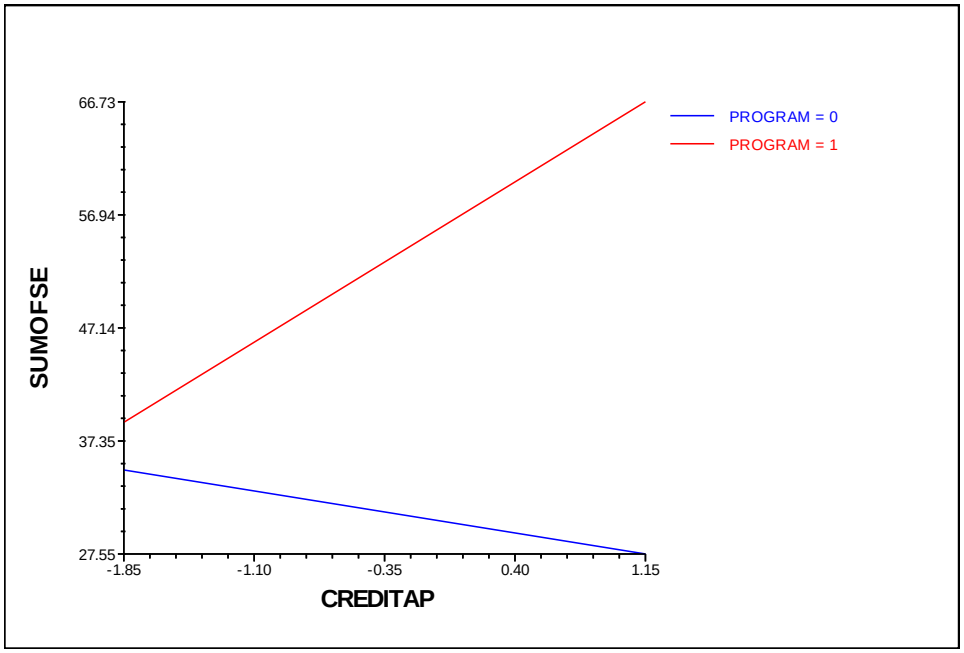

Figure 16. The relationship between self-efficacy scores (SUMOFSE) and the number of APE credits (CREDITAP) between GPETE (Blue) and APETE (Red)

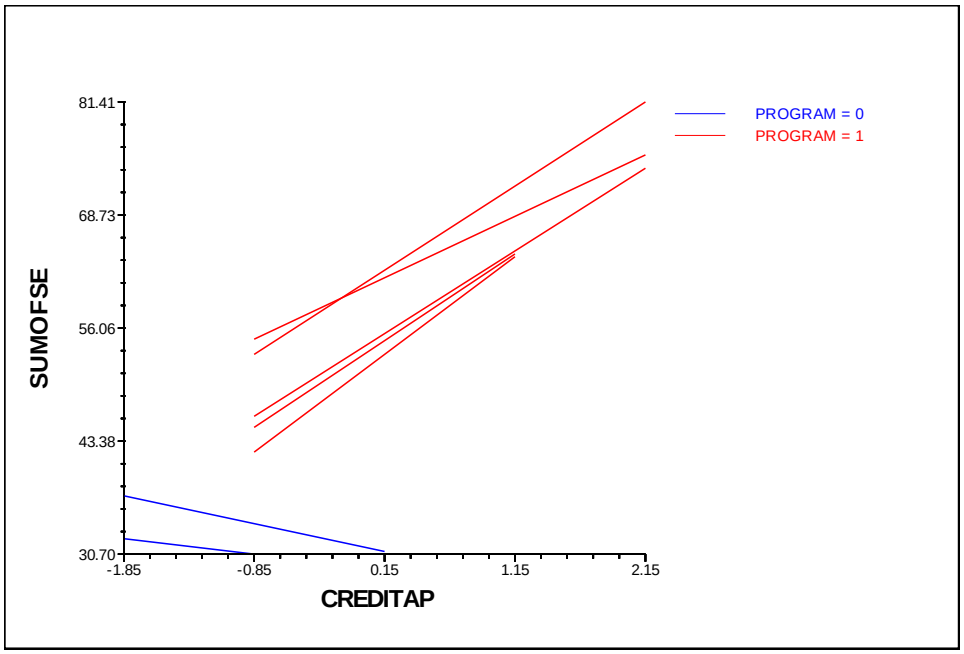

Figure 17. The relationship between self-efficacy scores (SUMOFSE) and the number of APE credits taken (CREDITAP) for each university (the red and blue lines represent APTE and GPTE programs, respectively)

RQ 3: Is there an effect of the type of practicum (campus-based practicums and volunteer experience) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

The Effect of the Number of Participations in Campus-Based Practicums

A random-coefficient model was examined to determine the relationship between the number of participations in campus-based practicums, which provide opportunities to teach students with disabilities physical education, and pre-service physical education teachers' self-efficacy toward inclusive physical education. Since GPETE programs do not provide this type of practicum for their undergraduate students, only the level 1 predictor, the number of participations in the practicum, was included in this analysis.

The value of ICC in this model was determined to be .69, indicating that 69% of the total outcome variance is between-universities. Therefore, this model was again suitable for multilevel modeling. The results for the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.54, *S.E* = 4.60, $p < .001$); the grand mean self-efficacy was thus 48.54 and the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [57.56, 39.52]. Furthermore, there was a significant average self-efficacy slope (γ_{10} = 6.09, *S.E* = 1.88, p =.018) (Figure 18). The regression slope indicates that the self-efficacy scores increased as the number of participations in the campus-based practicum increased. On average, one year participating in a campus-based practicum was associated with a 6.09 points increase in a student's self-efficacy score. In addition, the results also showed a significant variance among universities' self-efficacy means (τ_{00}= 146.37, χ^2 (4) = 406.18, $p<.001$), as well as a significant variance among the slopes for the number of participations in campus- based practicum-self-efficacy for the different universities (τ_{01}= 18.21, χ^2 (4) = 39.24, $p < .001$) . The value of PVE (0.37) in this model indicates that the number of participations in campus-based practicums explained 37% of the variance among the self-efficacy score means. These results demonstrate that participating in campus-based practicums had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (APE practicum) results are presented in Table 29.

Table 29

Parameter Estimates of a random-coefficient model (APE practicum)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	48.543646**	4.601867	6	10.549
Intercept 2 (γ_{10})	6.094254*	1.880435	6	3.241
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	146.37158**		4	406.17869
NAPEPRAC slope (τ_{11})	18.21094**		4	39.23533
Level-1 effect (σ^2)	64.88784			

*p< .05; **p< .001.

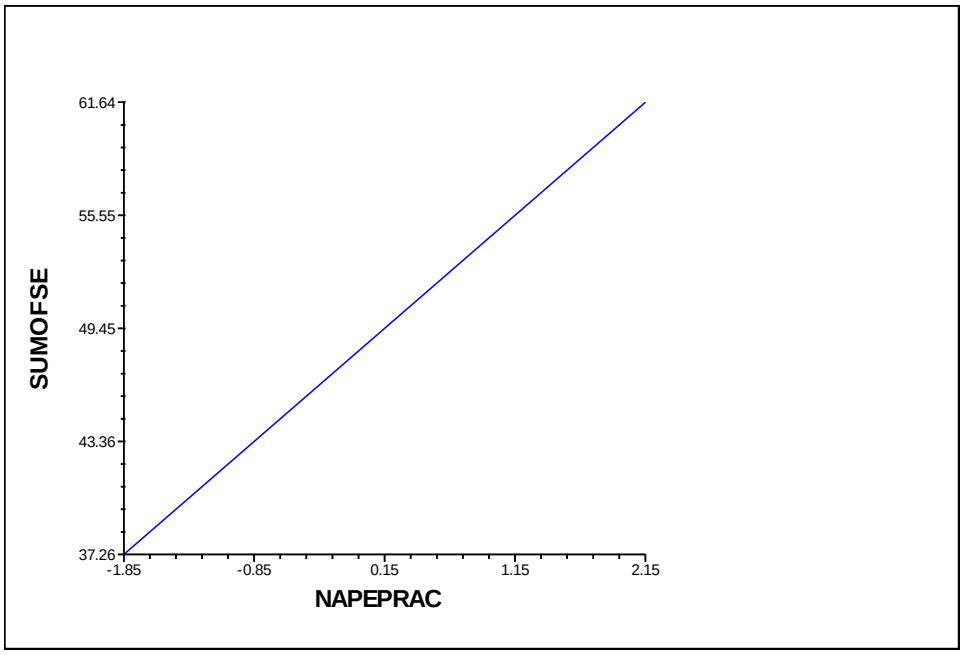

Figure 18. The relationship between self-efficacy scores (SUMOFSE) and the year of practicum participation (NAPEPRAC)

The Effect of the Number of Participations in Volunteer Experience

A intercept and slope model was also used to examine the effect of the number of participations in volunteer experiences on pre-service physical educators' self-efficacy toward inclusive physical education, which was an option for students in both programs. This model included the number of participation in volunteer opportunities as a level 1 predictor. Unlike the random coefficient model, this model also included the type of program as a level 2 predictor.

The value of ICC in this model was .11, thus explaining 11% of the total outcome variance between universities, so this model was suitable for multilevel modeling. The MLM shown in a intercept and slope model estimated identical coefficients (γ_{00} = 30.60, *S.E* = 2.75, $p < .001$, and γ_{01} = 25.58, *S.E* = 3.26, $p < .001$), representing self-efficacy mean scores for the GPETE programs of 30.60 and the APETE programs of 56.18 (Figure 19). These results indicate that volunteer experiences had significant effects on the mean scores for self-efficacy in both programs. The results of the intercept and slope model showed non-significant self-efficacy slopes for both the GPETE programs (γ_{10} =-1.89, *S.E* = 4.61, p =.698) and APETE programs (γ_{11}=4.08, *S.E* = 5.82, p=.515). There were also significant variances among the universities' self-efficacy means (τ_{00}= 12.59, $\chi^2(3) = 42.43$, $p<.001$), and their volunteer experiences-self-efficacy slopes (τ_{11}= 28.42, $\chi^2(3) = 9.54$, p= .022). The value of the PVE intercept (.91) in this model indicates that the type of program explained 91% of the variance among the universities' self-efficacy means; volunteer experiences had a significant effect on pre-service PE teachers' self-efficacy toward inclusive physical education in both programs. However, the number of volunteer experiences had no significant effect on their self-efficacy toward inclusive

physical education in either type of program. The intercept and slope model (volunteering by program) results are presented in Table 30.

Table 30

Parameter Estimates for the Intercept and Slope Model (volunteering by program)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	30.602198**	2.747989	5	11.136
DEPARTME (γ_{01})	25.582769**	3.261046	5	7.845
Intercept 2 (γ_{10})	-1.894259	4.606212	5	-0.411
DEPARTME (γ_{11})	4.079173	5.820234	5	0.701
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	12.592131**		3	42.42900
Volunteer slope (τ_{11})	28.42443*		3	9.54295
Level-1 effect (σ^2)	100.91668			

*p< .05; **p< .001.

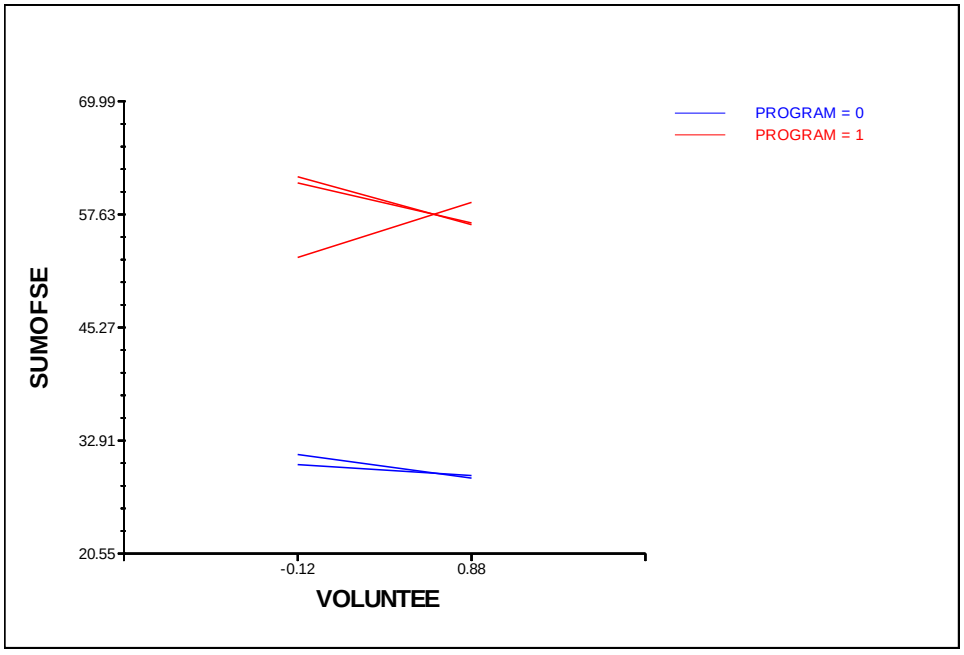

Figure 19. The self-efficacy scores (SUMOFSE) by number of volunteer experiences (VOLUNTEE) for each university (the red and blue lines represent APTE and GPTE programs, respectively)

RQ 4: Do sources of self-efficacy influence self-efficacy scores in pre-service teachers?

A random-coefficient model was used to compare the relationship between the sources of self-efficacy that exert a direct effect on the level of self-efficacy, and pre-service teachers' self-efficacy toward inclusive physical education.

The Effect of Mastery Experiences on Pre-Service Teachers' Self-Efficacy towards Inclusive Physical Education

The value of ICC in this model was determined to be .90, indicating that 90% of the total outcome variance is between-universities. Therefore, this model was deemed suitable for multilevel modeling. The results of the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.53, *S.E* = 4.60, p< .001), so the grand mean self-efficacy was 48.53 and the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [24.74, 72.32]. The average for the self-efficacy slope was also significant (γ_{10} = 2.18, *S.E* = .19, p<.001) (Figure 20). The regression slope indicates that the self-efficacy scores increased as the mastery experiences increased. On average, one point of mastery experiences was associated with a 2.18 point increase in the self-efficacy scores. In addition, these results revealed a significant variance among universities' self-efficacy means (τ_{00}= 147.33, χ^2 (6) = 3301.45, p<.001), as well as for their mastery experiences-self-efficacy slopes (τ_{01}= 0.23, χ^2 (6) = 80.19, p< .001). The value of PVE (.89) in this model indicates that mastery experiences explained 89% of the variance among the self-efficacy scores means. Hence, the scores for mastery experiences had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-

coefficient model (mastery experiences) results are presented in Table 31.

Table 31

Parameter Estimates for the Random-coefficient Model (Mastery experiences)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	48.532030**	4.595257	6	10.561
Intercept 2 (γ_{10})	2.184466**	0.193648	6	11.280
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	147.33304**		6	3301.45287
Mastery experience slope (τ_{11})	0.22760**		6	80.16055
Level-1 effect (σ^2)	16.61283			

*p< .05; **p< .001.

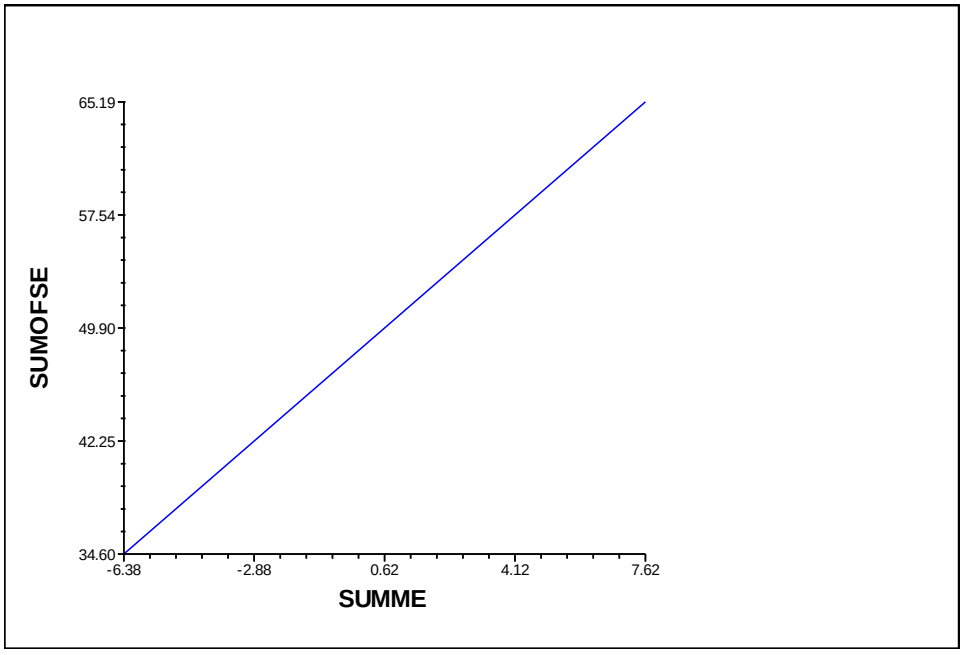

Figure 20. The relationship between self-efficacy scores (SUMOFSE) and mastery experiences (SUMME) among universities

The Effect of Vicarious Experiences on Pre-Service Teachers' Self-Efficacy towards Inclusive Physical Education

The value of ICC in this model was determined to be .77, so77% of the total outcome variance was between-universities and the model was deemed suitable for multilevel modeling. The results of the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.54, *S.E* = 4.61, p< .001), indicating a grand mean self-efficacy of 48.54; the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [24.75, 72.32]. There was also a significant average self-efficacy slope (γ_{10} = 1.92, *S.E* = .26, p<.001) (Figure 21). The regression slope indicated that self-efficacy scores increased as scores for vicarious experiences increased. On average, each point of vicarious experience was associated with a 1.92 point increase in the self-efficacy score. In addition, these results demonstrated a significant variance among the universities self-efficacy means (τ_{00}= 147.27, χ^2 (6) = 1274.81, p<.001), as well as their scores for the vicarious experiences-self-efficacy slopes (τ_{01}= 0.35, χ^2 (6) = 42.33, p< .001). The value of PVE (.70) in this model indicates that vicarious experiences explained 70% of the variance among the self-efficacy scores means. This indicates that higher scores for vicarious experiences had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (vicarious experiences) results are presented in Table 32.

Table 32

Parameter Estimates for the Random-coefficient Model (Vicarious experiences)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	48.538362 **	4.606150	6	10.538
Intercept 2 (γ_{10})	1.917912 **	0.255516	6	7.506
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	147.27367 **		6	1274.81047
Vicarious experiencesslope (τ_{11})	0.34888 **		6	41.32986
Level-1 effect (σ^2)	43.01650			

*p< .05; **p< .001.

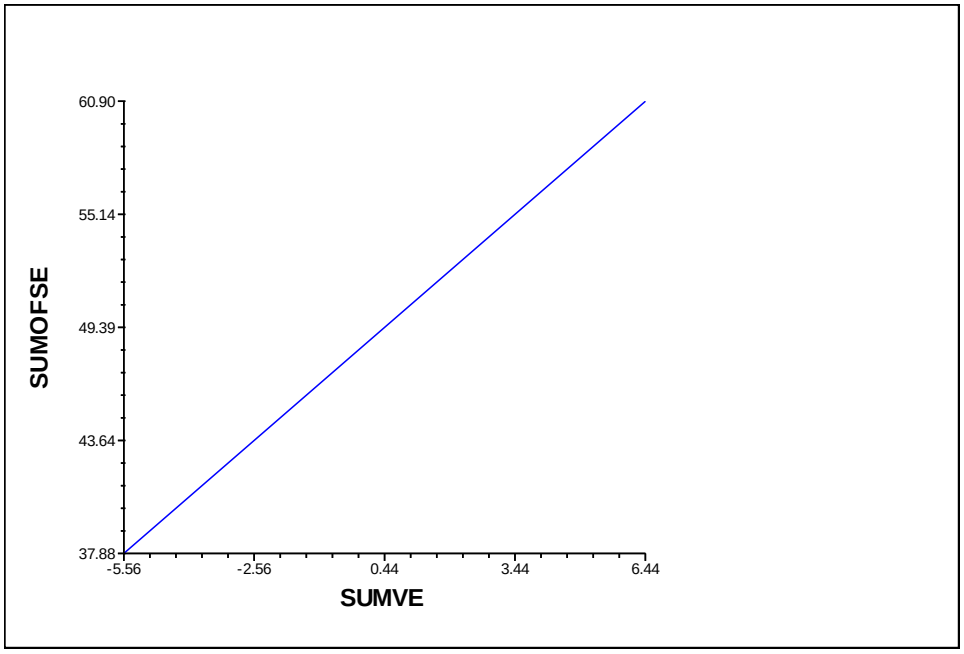

Figure 21. The relationship between self-efficacy scores (SUMOFSE) and vicarious experiences (SUMVE) among universities

The Effect of Social Persuasion on Pre-Service Teachers' Self-Efficacy towards Inclusive Physical Education

The value of ICC in this model was determined to be .80, so 80% of the total outcome variance is between-universities and this model is suitable for multilevel modeling. The results for the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.53, *S.E* = 4.60, p< .001); the grand mean self-efficacy was thus 48.53 and the 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [24.77, 72.29]. There was also a significant average self-efficacy slope (γ_{10} = 1.79, *S.E* = .17, p<.001) (Figure 22). The regression slope indicates that self-efficacy scores increased as the social persuasion scores increased. On average, each point of social persuasion was associated with a 1.79 point increase in the self-efficacy score. There was significant variance among universities' self-efficacy means (τ_{00}=146.95, χ^2 (6) = 1529.95, p<.001), as well as their scores for social persuasion-self-efficacy slopes (τ_{01}= 0.14, χ^2 (6) = 40.03, p< .001). The value of PVE (.75) in this model indicated that social persuasion explained 75% of the variance among the self-efficacy scores means. The scores for social persuasion thus had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (social persuasion) results are presented in Table 33.

Table 33

Parameter Estimates for the Random-coefficient Model (Social persuasion)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	48.532004 **	4.597895	6	10.555
Intercept 2 (γ_{10})	1.794741 **	0.172650	6	10.395
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	146.94617 **		6	1529.95057
Social persuasion slope (τ_{11})	0.13953 **		6	40.03407
Level-1 effect (σ^2)	35.84856			

*p< .05; **p< .001.

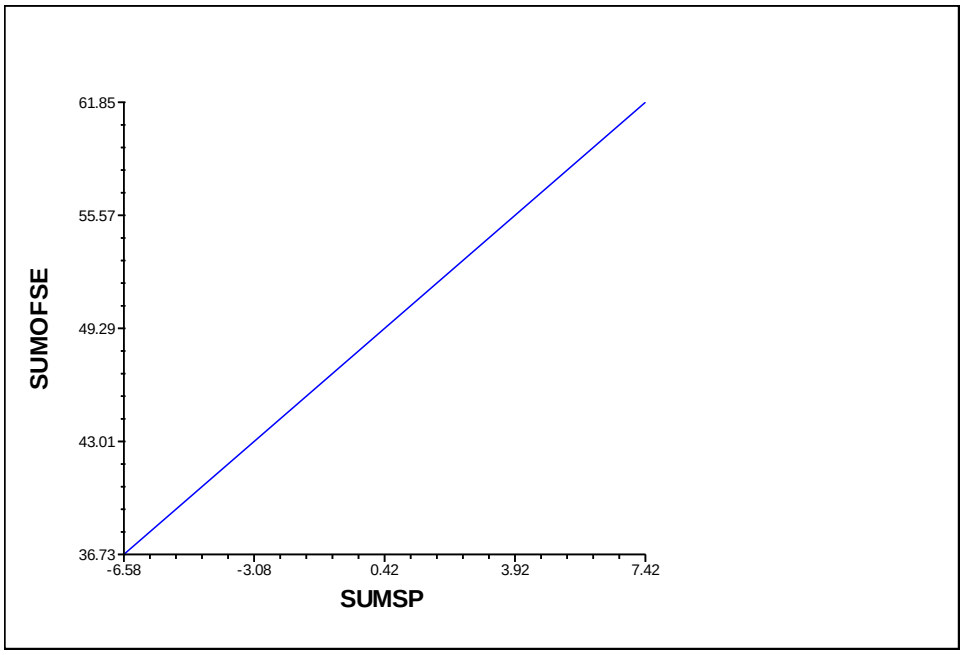

Figure 22. The relationship between self-efficacy scores (SUMOFSE) and social persuasion (SUMSP) among universities

The Total Effect of All Sources of Self-Efficacy on Pre-Service Teachers' Self-Efficacy towards Inclusive Physical Education

The value of ICC in this model was determined to be .87, which indicates that 87 % of the total outcome variance is between-universities. Therefore, once again this model was suitable for multilevel modeling. The results of the random-coefficient model showed a significantly non-zero mean for the self-efficacy scores (γ_{00} = 48.53, *S.E* = 4.60, p< .001), so the grand mean self-efficacy was 48.53. The 95% confidence interval around the estimate of the level-two intercept (γ_{00}) was [39.52, 57.54]. There was also a significant average self-efficacy slope (γ_{10} =.78, *S.E* = .06, p<.001) (Figure 23). The regression slope indicates that the self-efficacy scores increased as the total scores for all the self-efficacy sources increased, with on average, each increase of one point in the total score for the sources of self-efficacy being associated with a 7.8 point increase in the self-efficacy score. There was a significant variance among the universities' self-efficacy means (τ_{00}= 147.19, χ^2 (6) = 2393.80, p<.001), along with a significant variance among the universities' scores of sources of self-efficacy-self-efficacy slopes (τ_{01}= 18.21, χ^2 (4) = 39.24, p< .001). The value of PVE (.78) in this model indicates that the scores for sources of self-efficacy explained 78% of the variance among self-efficacy score means, thus confirming that the total effect of all the sources of self-efficacy had a significantly positive effect on improving pre-service PE teachers' self-efficacy toward inclusive physical education. The random-coefficient model (scores of sources of self-efficacy) results are presented in Table 34.

Table 34

Parameter Estimates of the Random-coefficient Model (All sources of self-efficacy)

Fixed effects	Coefficient	S.E	*df*	*t*-ratio
Intercept 1 (γ_{00})	48.530539**	4.595911	6	10.560
Intercept 2 (γ_{10})	0.784888**	0.061456	6	12.772
Random Effect	Variance Component		*df*	χ^2
University mean (τ_{00})	147.19253**		6	2393.8011
Sources of self-efficacy slope (τ_{11})	0.01964**		6	44.71121
Level-1 effect (σ^2)	22.91273			

*p< .05; **p< .001.

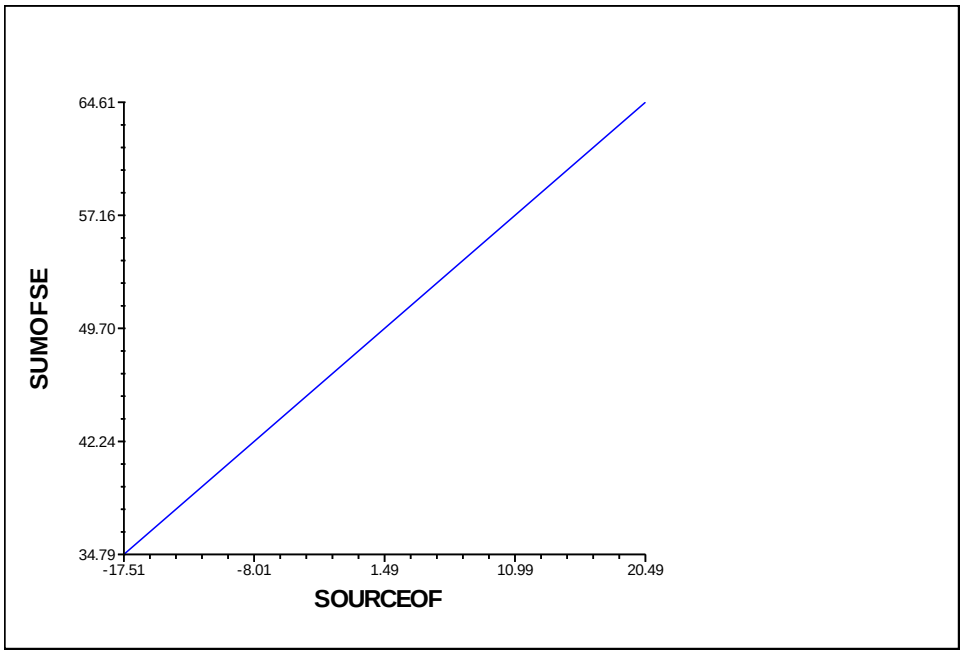

Figure 23. The relationship between self-efficacy scores (SUMOFSE) and total scores of sources of self-efficacy (SOURCEOF)

Sub RQ4.1: If the answer to RQ4 is "yes", is there an effect due to the type of coursework in APETE programs and GPETE programs on pre-service physical education teachers' sources of self-efficacy toward teaching students with disabilities in general physical education classes?

A mean-as-outcome model was applied to answer RQ4.1. To analyze the effect of the various sources of self-efficacy, the scores for each source (mastery experiences, vicarious experiences and social persuasion) and the overall total for these sources of self-efficacy were used as level 1 predictors. In addition, the type of program was applied as a level 2 predictor to find the difference between APETE and GPETE.

The Effect of Mastery Experience by Type of Program

The value of ICC in this model was determined to be .11, meaning that 11% of the response variable variation is present at level-2 (universities) and this model was again deemed suitable for multilevel modeling. The MLM shown in the mean-as-outcome model estimated identical coefficients (γ_{00} = 14.20, *S.E* = 1.15, p < .001, and γ_{01} =4.94, *S.E* = 3.61, *p*= .015), signifying that the mean of the mastery experiences scores for the GPETE program was 14.20, and that for the APETE program was 19.14, from the sum of γ (γ_{00} +γ_{01}) (Figure 25). These results indicate that the type of program had a significant effect on the pre-service PE teachers' scores for mastery experiences. Furthermore, these results also showed the effect of the type of program on pre-service physical education teachers' mastery experiences, which varied significantly across universities even after controlling for the type of program (τ_{00}= 2.22, χ^2 (5) = 54.81, *p*<.001), with the sources of self-efficacy scores means also varying significantly across universities. This demonstrates that the mean of the mastery experiences scores was

significantly different among universities by program; the value of PVE (.67) in this model indicates that the type of program explained 67% of the variance among the mastery experiences scores means.

Participants in GPETE programs had a mean score of 14.20, which indicated ' Not at all successful (Less than 15% of the time)' which divided by six questions was 2.4 for an average score. Participants in the APETE programs had a mean score of 19.14 for an average score 3.19, which indicated ' Not very successful'. Therefore, participants in both programs did not show successful mastery experiences. The results for the outcome model for the mean of the mastery experiences are presented in Table 35.

I do not have any experience doing this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
6	12	18	24	30	36

Figure 24. Scoring Scale of Mastery Experiences

Table 35

Parameter Estimates for the Mean Outcome Model for Mastery Experiences

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	14.198850**	1.154581	5	12.298
Intercept 2 (γ_{01})	4.940860*	1.369570	5	3.608
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	2.22081**		5	54.81351
Level-1 effect (σ^2)	17.30078			

*p< .05, **p< .01.

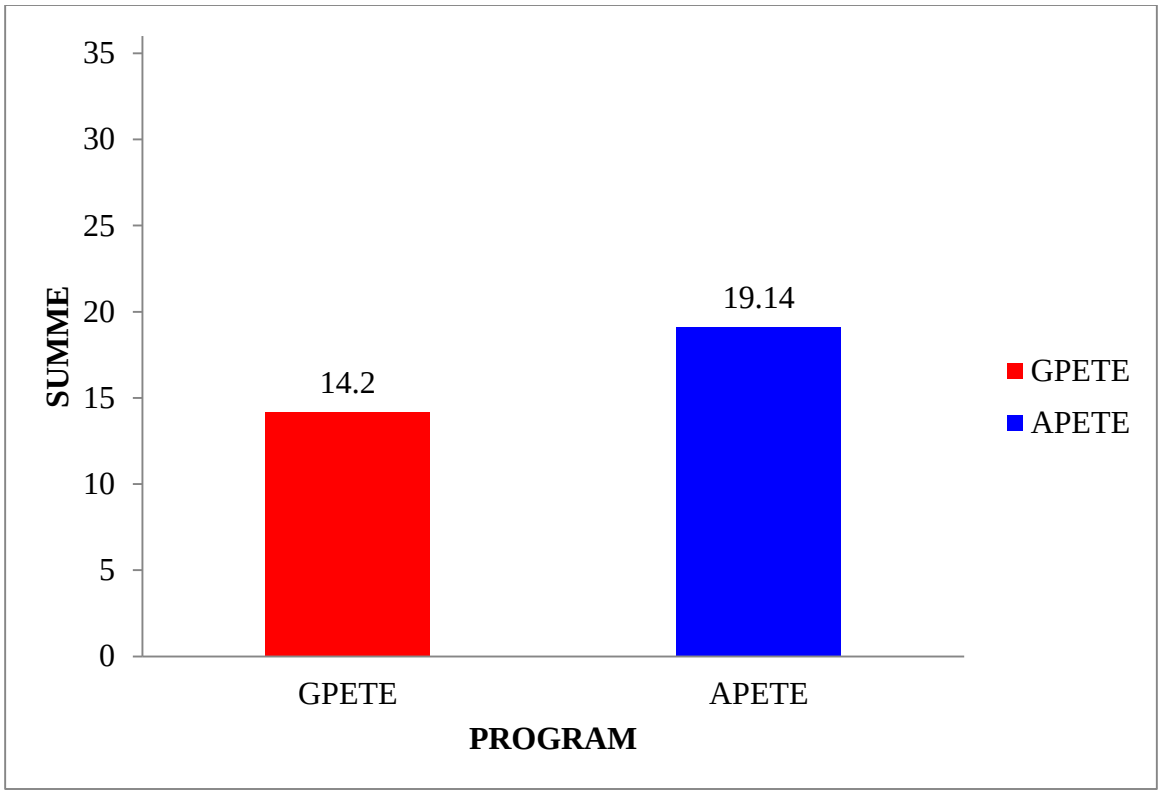

Figure 25. The differences in the mean mastery experiences scores (SUMME) for GPETE and APETE departments

The Effect of Vicarious Experiences by Type of Program

The value of ICC in this model was determined to be .21, showing that 21% of the response variable variation is present at level-2 (universities). Therefore, this model was deemed suitable for multilevel modeling. The MLM shown in the mean-as-outcome model estimated identical coefficients (γ_{00}= 12.83, *S.E*= 1.30, p < .001, and γ_{01} = 4.31, *S.E* = 2.79, *p*= .038), which indicates that the mean for the vicarious experiences scores for the GPETE programs was 12.83 and that for the APETE programs was 17.14, the sum of γ (γ_{00} +γ_{01}) (Figure 27). These results demonstrate that the type of program had a significant effect on the pre-service PE teachers' vicarious experiences scores and that the

effect of the type of program on pre-service physical education teachers' vicarious experiences once again varied significantly across universities after controlling for the type of program (τ_{00}= 3.10, χ^2 (5) = 107.57, p<.001). The vicarious experiences score means varied significantly across universities and were also significantly different among universities for the different programs. The value of PVE (.55) in this model indicates that the type of program explained 55% of the variance among the vicarious experiences score means.

A mean score of 12.83 for participants in the GPETE programs showed ' Not at all successful (Less than 15% of the time) which divided by six questions results in an average score of 2.13. Participants in the APETE programs had a mean score of 17.14 resulting in an average score of 2.85 indicating ' Not very successful'. Therefore, participants in both programs did not show successful vicarious experiences. The mean as outcome model results for vicarious experiences are presented in Table 36.

I do not have any experience doing this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
6	12	18	24	30	36

Figure 26. Scoring Scale of Vicarious Experiences

Table 36

Parameter Estimates of Mean as Outcome Model for Vicarious Experiences

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	12.825252 **	1.305851	5	9.821
Intercept 2 (γ_{01})	4.317441 *	1.547463	5	2.790
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	3.10490 **		5	107.57017
Level-1 effect (σ^2)	11.72214			

*p< .05; **p< .001.

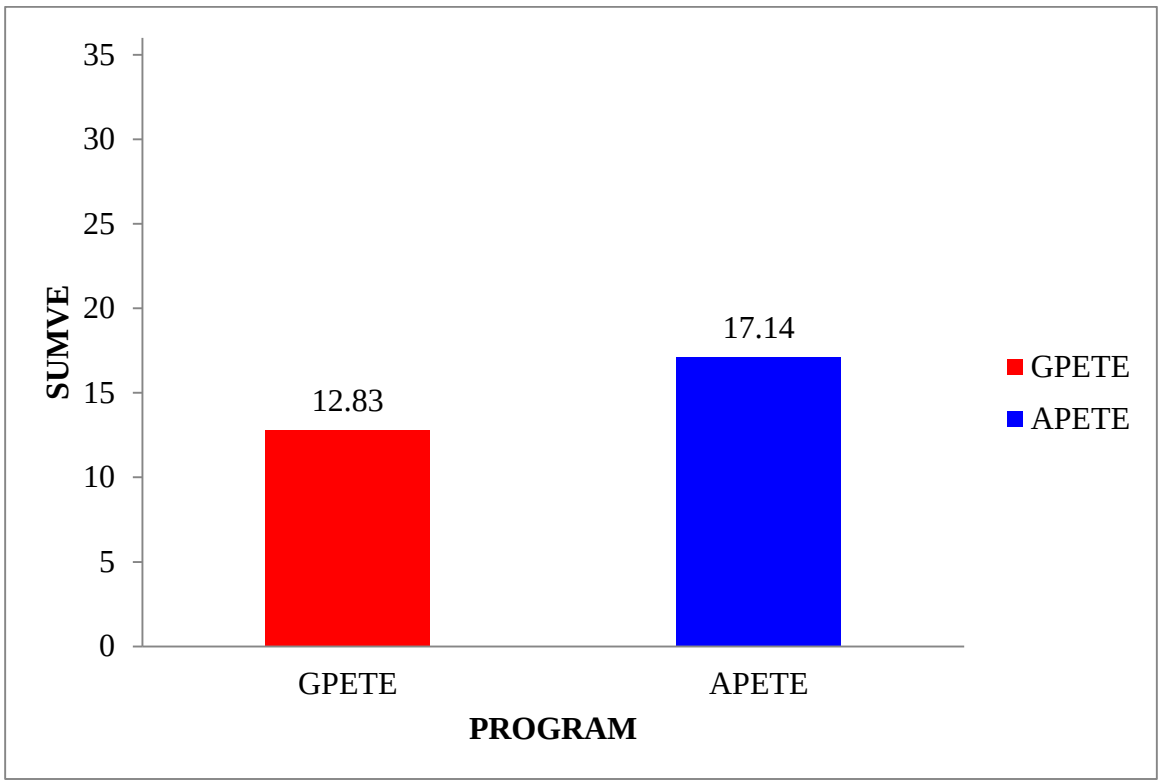

Figure 27. The differences in the mean vicarious experiences scores (SUMVE) for GPETE and APETE departments

The Effect of Social Persuasion by Type of Program

The value of ICC in this model was determined to be .21, indicating that 21% of the response variable variation is present at level-2 (universities). Therefore, this model once again suitable for multilevel modeling. The MLM shown in the mean-as-outcome model estimated identical coefficients (γ_{00}= 13.21, *S.E*= 1.01, p < .001, and γ_{01} =5.38, *S.E* = 1.19, *p*= .006), with the mean social persuasion scores for the GPETE programs being 13.21 and that of the APETE programs 18.59, the sum of γ (γ_{00} +γ_{01}) (Figure 29).These results show that the type of program had a significant effect on the pre-service PE teachers' social persuasion scores. These results also showed that the effect of the type of program on pre-service physical education teachers' social persuasion varied significantly across universities after controlling for the type of program (τ_{00}= 3.10, χ^2 (5) = 107.57, *p*<.001), with the means of the social persuasion scores varying significantly across universities. The means of the social persuasion scores were also significantly different among universities for the two different programs. The value of PVE(.55) in this model indicates that the type of program explained 55% of the variance among the social persuasion score means.

A mean score of 13.21 for GPETE showed ' Not at all capable', which when divided by six questions resulted in an average score of 2.20. The mean score for participants in the APETE programs was 18.59, which resulted in an average score of 3.09 indicating ' Not very capable'. Therefore, participants in both programs did not show a capable state. The mean as outcome model results are presented in Table 37.

I have not been told anything about my capabilities	Not at all capable	Not very capable	Both capable and not capable	Moderately capable	Very capable
6	12	18	24	30	36

Figure 28. Scoring Scale of Social Persuasion

Table 37

Parameter Estimates for the Mean as Outcome Model for Social Persuasion

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	13.211157 **	1.006179	5	13.130
Intercept 2 (γ_{01})	5.379330 *	1.194109	5	4.505
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	1.58831 **		5	40.87586
Level-1 effect (σ^2)	17.10136			

*p< .05; **p< .001.

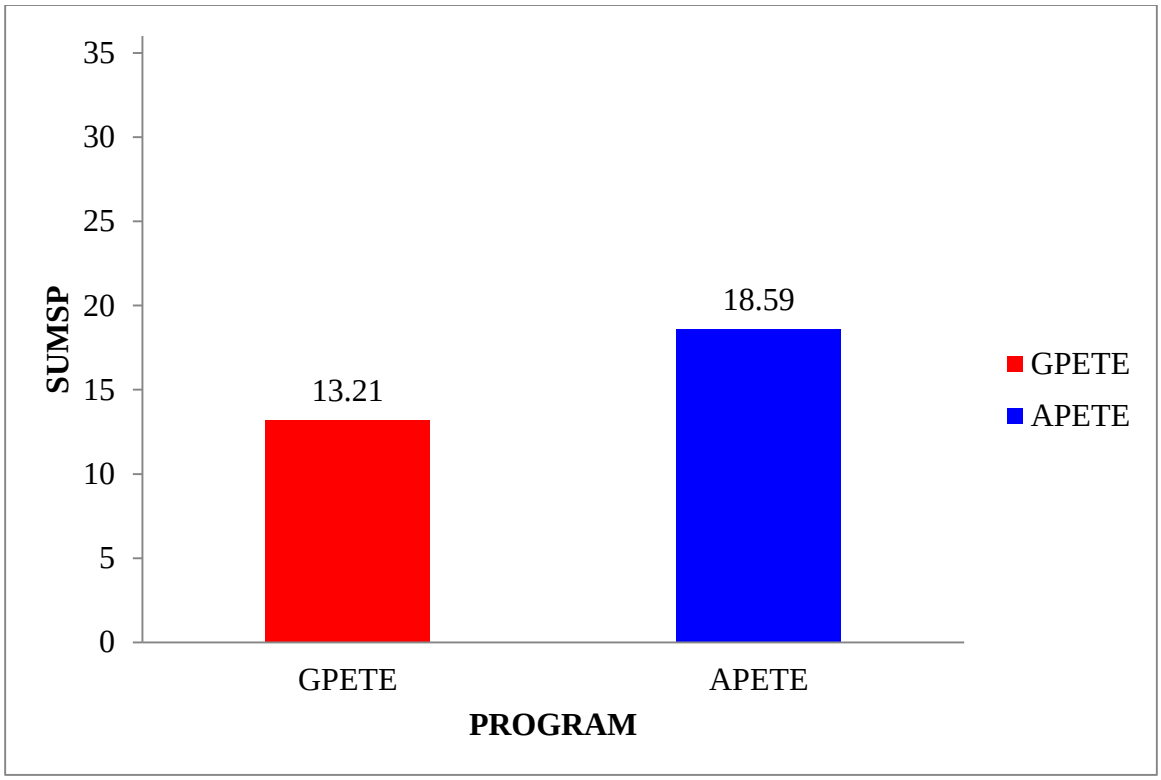

Figure 29. The differences in the mean social persuasion scores (SUMSP) between GPETE and APETE departments

The Total Effect of All Sources of Self-efficacy by Type of Program

The value of ICC in this model was determined to be .14, meaning that 14% of the response variable variation is present at level-2 (universities). This model was thus deemed suitable for multilevel modeling. The MLM shown in the mean-as-outcome model estimated identical coefficients (γ_{00}= 40.22, *S.E*= 3.39, p< .001, and γ_{01} = 14.60, *S.E* = 4.02, p= .015), showing that combining the mean scores for all three sources of self-efficacy produced a score for the GPETE programs of 40.22, while for the APETE programs it was 54.82, the sum of γ (γ_{00} +γ_{01}) (Figure 30). These results indicate that the type of program had a significant effect on pre-service PE teachers' combined scores for all sources of self-efficacy toward inclusive physical education. Furthermore, these

results also showed that the effect of the type of program on pre-service physical education teachers' self-efficacy toward inclusive physical education did vary significantly across universities after controlling for the type of program (τ_{00}=19.90, χ^2 (5) = 69.76, p<.001). The mean scores for all three sources of self-efficacy varied significantly across universities and was also significantly different among universities by program. The value of PVE (0.68) in this model indicates that the type of program explained 68% of the variance among the mean scores for all three sources of self-efficacy.

Participants from the GPETE programs had a mean score of 40.22, which when divided by 6 questions resulted in an average score of 2.23. Participants from the APETE programs had a mean score of 54.82, which resulted in an average score of 3.04. Therefore, participants from both programs did not show a high level of sources of self-efficacy. The mean as outcome model results are presented in Table 38.

Table 38

Parameter Estimates for the Mean as Outcome Model for the Combined Self-Efficacy Scores

Fixed effect	Coefficient	S.E	df	*t*-ratio
Intercept 1 (γ_{00})	40.223960 **	3.391790	5	11.859
Intercept 2 (γ_{01})	14.596695 *	4.021851	5	3.629
Random Effect	Variance Component		df	χ^2
University mean (τ_{00})	19.89770 **		5	69.76461
Level-1 effect (σ^2)	120.22394			

*p< .05, **p< .01.

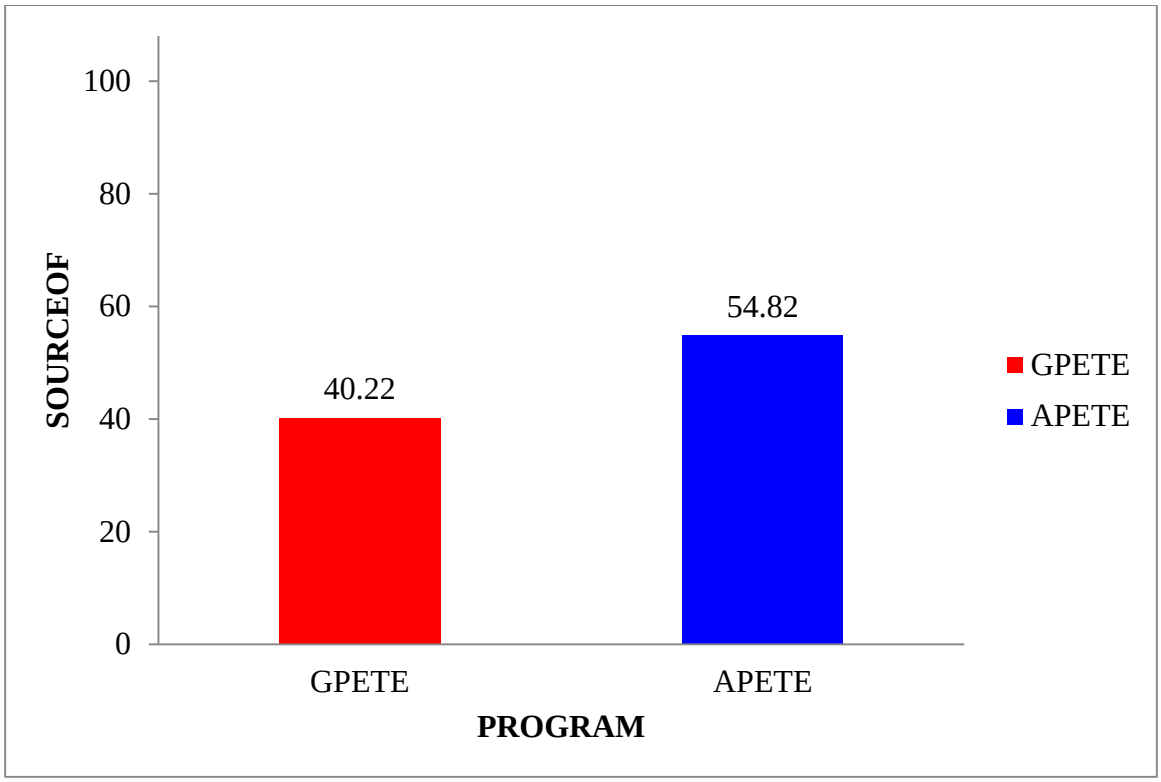

*Figure 30.*The mean differences for the mean scores of the three sources of self-efficacy combined (SOURCEOF) for GPETE and APETE departments

CHAPTER5

DISCUSSION

The purpose of this study was to investigate the effects of coursework in PETE programs on pre-service teachers' self-efficacy toward inclusive physical education. The major findings of this study were: (a) the positive effect of credits of dedicated courses, namely special education and adapted physical education, on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; (b) the positive relationship between the number of credits of each type of course taken and the Korean pre-service physical education teachers' self-efficacy toward inclusive physical education; and (c) the positive effect of campus-based practicums and volunteer experiences on Korean pre-service physical education teachers' self-efficacy toward inclusive physical education. This chapter presents (a) a discussion of the results of this study, organized in terms of the study research questions; (b) a consideration of the study's limitations and possible directions for future research, and (c) the conclusions that can be drawn as a result of this research.

RQ1: Is there an effect due to the type of coursework in APETE programs (adapted physical education teacher education) and GPETE programs (general physical education teacher education) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

This research was conducted to find the effect of the type of program on pre-service teachers' self-efficacy toward inclusive physical education. The study findings revealed that pre-service PE teachers in APETE programs had a higher mean self-efficacy score toward inclusive physical education than pre-service PE teachers studying in GPETE programs, hence the null hypothesis was rejected. The result of RQ1 showed that the mean self-efficacy score for the APETE students was significantly greater than that for students in GPETE programs. This result provides strong evidence that the curriculum of APETE programs has a positive effect on pre-service teachers' self-efficacy towards inclusive physical education. This is not surprising, since there is a considerable difference in coursework in APE/SPE in APETE courses compared to that in GPETE programs. In APETE programs, pre-service teachers are given many more opportunities to receive information that is specifically tailored to teaching physical education to students with disabilities, with more credits in APE and special education compared to those offered in GPETE programs, which generally provide less than 5 credits of APE and no credit in special education. Therefore, students in the APETE program were more likely to learn about the important characteristics of children with disabilities through their specialized coursework and practica, as well as strategies for teaching students with disabilities, and how to take into account factors such as low physical strength, balance and coordination when including children with disabilities in their GPE classes as a result of the specialized courses they have taken on teaching students with disabilities.

Further analysis showed that within the APETE programs the steepest slope regarding improved levels of self-efficacy was between year two and three of the program. Adapted physical education classes are commonly provided from 8 credits to 12

credits from years two to three in APETE programs, which was in the range of the steepest slope to increase the self-efficacy score. More specifically, self-efficacy scores showed the steepest slope between 5-15 credits to 16-25 credits. Therefore, differences between self-efficacy scores of second year APETE and GPETE participants was expected given that second year APETE students already reached the point where the scores had already sharply increased. Furthermore, most APETE students usually participate in campus-based practicum starting from their second year. This practicum experience might be a possible variable that resulted in second year students in APETE having higher self-efficacy scores compared to second year students in GPETE programs. This result was consistent with the findings of previous studies, which indicated that participation of practicum improved pre-service teachers' self-efficacy towards inclusive physical education (Hutzler et al., 2005; Taliaferro et al., 2015).

According to Hodge and Jansma (2000), course preparation is an important variable for preparing university students to teach students with disabilities. Many previous studies have found that providing courses related to teaching students with disabilities and practicum experience for teaching students with disabilities from PETE programs improves PE teachers' level of confidence toward teaching students with disabilities in general physical education (Combs et al, 2010; Doulkeridou et al., 2011; Elliott, 2008; Fournidou et al., 2011; Mangope et al., 2013; Martin & Kudlacek, 2010).Furthermore, Hutzler and his colleagues (2005) reported that the academic courses they take have a significant effect on pre-service PE teachers' self-efficacy toward inclusive physical education. The findings of the current study confirm that APETE programs that provide specialized courses, in this case more than 38 credits of APE and

42 credits of special education classes for teaching physical education for students with disabilities, have a more powerful effect on pre-service teachers' self-efficacy toward inclusive physical education than GPETE programs that provide less than 5 credits in a single APE course, either as a required or selective course, and no credit for special education. It was thus expected that these specialized courses would improve the student teachers' self-efficacy toward inclusive physical education. This suggests that GPETE programs should strengthen their APE areas by offering more specialized courses that provide specific information on include students with disabilities in GPE.

Self-efficacy scores of participants in APETE programs indicated moderate to high confidence. However, self-efficacy of participants in GPETE programs was very low. The low mean self-efficacy scores suggest that GPETE programs in Korea do not do do a good job of preparing future GPE teachers for the inclusion of children with disabilities into their physical education classes. This is unfortunate as changes in laws and Korea is resulting in more children with disabilities being included in general schools and in general physical education programs, and most like students trained in GPETE programs are going to be physical educators providing physical education to students with disabilities who are included. According to the Korean Ministry of Education (2014), the number of students with disabilities enrolled in special or general classes in the nation's general schools has gradually increased every year for the previous five years. This report indicated that more students with disabilities will be enrolled in the general education setting. Therefore, GPETE programs in Korea need to develop physical education teachers who have a high level of confidence towards teaching students with disabilities in GPE classes by providing more opportunities to receive academic

knowledge and teaching experiences related to students with disabilities. Apparently the current model in which GPETE programs provide only 2 to 5 credits of APE is not enough to develop self-efficacy towards inclusive physical education. This lack of preparatory courses related to teaching students with disabilities in physical education has is not unique to Korea, for example in the United Kingdom, Vickerman and Coates (2009) insisted that GPETE programs should to provide the opportunity to take courses focusing on including students with disabilities in general physical education, and they further suggested the importance of keeping a balance between theoretical and practice courses related to students with disabilities.

Sub RQ 1.1: If the answer to RQ 1 is "yes", does the number of APE and special education credits influence the level of individual pre-service physical educators' self-efficacy toward inclusive physical education?

To identify the detailed effect of the number of credits of specialized courses taken, this study examined the individual effect of each course without the level 2 effect, focusing solely on the type of program. This addresses an issue raised by Block et al. (2013), who pointed out the need to find the specific effect of APE courses on pre-service teachers' self-efficacy toward inclusive physical education. Taliaferro et al. (2015) tried to investigate the effect of APE courses, but their study analyzed participants who took only one or two APE courses. Although Taliaferro and her colleagues found APE courses did improve pre-service teachers' self-efficacy beliefs toward inclusive physical education, the results of their study found no significant difference in the between the group who took two APE courses and the other that took only one. The present study recruited pre-

service teachers who took several APE courses, in some cases exceeding 35 credit hours, and compared them with a group that took less than 5 credits. This made it possible to analyze the effect of APE credits on pre-service PE teachers' self-efficacy toward teaching students with disabilities in GPE over a much wider range.

Regarding the number of APE credits, the null hypothesis for Sub RQ1.1 was rejected: the mean self-efficacy score of pre-service teachers who took more APE credits was significantly greater than that of pre-service teachers who took fewer APE credits. Furthermore, this result provides strong evidence for the reasons why the students in APETE programs showed a higher self-efficacy score toward inclusive physical education than those in GPETE programs.

It is not surprising to find a significant difference in self-efficacy scores depending on the number of APE credits; this result is consistent with the findings of Jovanović, Kudláček, Block and Djordjević (2015), who reported the significant effect of APE courses on pre-service PE teachers' self-efficacy scores toward inclusive physical education, demonstrating that the number of APE credits was a meaningful factor for the increase in self-efficacy scores they observed. Taliaferro et al. (2015) found a similar result, showing that participation in APE courses helped pre-service PE teachers improve their self-efficacy beliefs toward teaching students with disabilities in GPE classes. In general, researchers agree that taking more APE credits has a significant effect on pre-service PE teachers' self-efficacy toward inclusive physical education.

As noted above, self-efficacy scores of participants in both APETE and GPETE were still not significant high, which indicated APETE programs had moderate to high confidence, and GPETE programs was very low. However, the number of APE credits

showed a significant positive effect on improvement of their self-efficacy towards inclusive physical education. APETE programs in Korea provide APE courses that require more than 38 credits (more than 13 courses) covering areas such as introduction to APE, curriculum education for APE, APE for intellectual disabilities, APE for physical disabilities and APE for multiple/severe disabilities (Park et al., 2013). These courses provide students with specific information on how to teach students with disabilities taking into consideration the characteristics of their specific disabilities, provide guidance on curriculum and lesson planning development, and suggest ways to adapt instructions and equipment while teaching students with disabilities within normal school GPE programs.

In terms of the effect of special education credits, the findings from the present study reveal that the number of special education credits had a significant effect on the pre-service PE teachers' self-efficacy toward teaching students with disabilities in their GPE classes. Several previous studies have also suggested that courses related to special education are associated with pre-service teachers having higher levels of self-efficacy toward teaching students with disabilities in general education settings (Brownell & Pajares, 1999; Buell et al., 1999; Coladarchi & Breton, 1997; Freytag, 2001; Lancaster & Bain, 2007; Leyser et al., 2011;Paneque & Barbetta, 2006).In particular, Leyser et al (2011) found that intensive training for teaching students with disabilities, such as special education or participation in specialized coursework or workshops related to teaching students with disabilities ,has a strong effect on pre-service teachers' self-efficacy toward inclusive education settings. An earlier study by Lancaster and Bain (2007) also reported that courses related to special education, such as communication, transition, literacy and

numeracy difficulties, and assistive technology, have a positive effect on pre-service teachers' self-efficacy toward inclusion.

Korean APETE programs provide in-depth special education courses for pre-service PE teachers (Park et al., 2013), starting with an introduction to special education, and then moving on to a wide range of topics that cover every aspect of inclusive education for students with disabilities in PE classes. The information presented in the APETE curriculum includes several special education courses and is thus highly likely to be linked to the results of the studies mentioned above related to inclusive education in special education. In this study, the special education courses in APETE programs also had a significant effect on pre-service teachers' self-efficacy for teaching students with disabilities in GPE classes.

Bandura (1997, 1994) listed four sources of self-efficacy (mastery experience, vicarious experience, social persuasion, and physiological status) that he contended have an effect on the level of self-efficacy. By providing a wide range of APE and special education courses that provide numerous opportunities to observe and acquire specific examples related to curriculum development, including lesson plans, teaching and assessment for students with most types of disabilities, pre-service teachers in APETE programs build a solid base of vicarious experience related to teaching students with disabilities in physical education to help them in their future careers. For example, passing courses and completing assignments related to teaching students with disabilities is likely to improve pre-service teachers' level of mastery experiences. In addition, the positive feedback the pre-service teachers obtain from professors or APE or special education specialists during their coursework and campus-based practicums provides a

form of social persuasion. Watching videos and listening to the stories their professors tell them about their own experiences are also important in improving the students' level of self-efficacy as these contribute vicarious experiences. Therefore, it is not surprising that APE and special education courses were found to have a significantly positive effect on pre-service PE teachers' level of self-efficacy toward inclusive physical education.

RQ 2: What type of program is most effective in maximizing the effect of an APE course on pre-service physical educators' self-efficacy toward inclusive physical education?

This research was conducted to determine which type of curriculum is most effective in maximizing the effect of APE coursework on pre-service teachers' self-efficacy toward inclusive physical education. As previously discussed, appropriate preparation from college courses provides pre-service teachers with invaluable assets such as confidence in their ability to teach students with disabilities in GPE classes (Combs et al., 2010; Doulkeridou et al., 2011; Elliott, 2008; Fournidou et al., 2011; Hodge & Jansma, 2000; Mangope et al., 2013; Martin & Kudlacek, 2010). In this study, the results of the regression analysis indicated that APETE programs did indeed exhibit a positive effect, depending on the number of APE credits. Interestingly, this was not the case in GPETE programs, where more APE coursework did not have a significant effect. It was surprising that the results for GPETE indicated that the number of APE credits had no significant effect on the pre-service teachers' self-efficacy scores toward inclusive physical education. This may have been because pre-service teachers in GPETE had a generally low self-efficacy toward teaching students with disabilities since they had not received sufficient APE coursework (less than 5 credits) to support their confidence in

this area. However, this result is more likely associated with the findings of Taliaferro et al. (2015)'s study, which indicated no significant effect based on the number of APE credits in GPETE programs, even though taking an APE course did improve pre-service teachers' self-efficacy toward teaching students with disabilities in their GPE classes. This suggests that the specialized APETE programs include factors that maximize the effect of APE credits on the pre-service PE teachers' self-efficacy toward inclusive physical education, especially the required credits of APE, special education, and campus-based APE practicums. The benefits provided by the special education courses discussed earlier in the chapter, particularly the specialized courses provided only in APETE programs that improve the level of self-efficacy toward inclusive physical education, support the utility of maximizing the number of APE credits in APETE programs. This supports the findings of Jenkins and Yoshimura (2010)'s study that suggested that general education teachers need to be familiar with special education contexts if they are to be able to build effective teaching strategies and skills for students with disabilities in general education settings. However, the actual self-efficacy scores of APETE programs, although higher than GPETE, were still not very high.

As previously discussed, there is a consensus among researchers in the field that subject coursework and special education coursework, in conjunction with practicum teaching with students with disabilities, is an effective approach to improving the level of self-efficacy toward teaching students with disabilities (Brownell & Pajares, 1999; Buell et al., 1999; Coladarchi & Breton, 1997; Freytag, 2001; Jenkins & Yoshimura, 2010; Lancaster & Bain, 2007; Leyser et al., 2011; Paneque & Barbetta, 2006). Overall, pre-service PE teachers in APETE programs who are enrolled in several special education

classes and a campus-based practicum could be given more powerful experiences and information needed to improve their self-efficacy toward inclusive physical education via APE courses, while the curriculum offered by APETE programs would maximize the effect of these APE courses on pre-service teachers' self-efficacy toward teaching students with disabilities in GPE classes.

RQ 3: Is there an effect of the type of practicum (campus-based practicum and volunteer experience) on pre-service physical education teachers' self-efficacy toward inclusive physical education?

This research also sought to determine whether significant improvements in pre-service PE teachers' level of self-efficacy toward inclusive physical education could be achieved by their completion of a practicum related to teaching students with disabilities. The study findings revealed that the amount of participation in campus-based practicums for teaching PE to students with disabilities had a significant positive regression effect on the self-efficacy of the participants, clearly reflecting the advantage of a campus-based practicum. Furthermore, descriptive statistics showed that participants in APETE programs providing campus-based practica had higher self-efficacy than both the two APETE programs that did not provide this campus-based practicum as well as GPETE programs. These results show the significance of practical experiences above simply taking theoretical APE coursework. These findings of the importance of the practicum experience matches nicely with Bandura's model as such practical experiences provide pre-service teachers mastery and vicarious experiences. It should be noted that one APETE programs providing the campus-based practicum did not show significant mean

difference compared to the other two APETE programs. However, no 4th year students from this particular APETE program participated in this study, which may have skewed the data.

This finding regarding the effect of a campus-based practicum is consistent with those of previous researchers in the fields of both general and special education that indicated that providing teaching experiences working with students with disabilities in a campus-based practicum helped pre-service teachers improve their level of self-efficacy toward teaching students with disabilities in general education settings (Brownell & Pajares, 1999; Buell et al., 1999; Coladarchi & Breton, 1997; Freytag, 2001; Jenkins & Yoshimura, 2010; Lancaster & Bain, 2007; Leyser et al., 2011; Paneque & Barbetta, 2006). For APE classes in particular, the results of this study are also consistent with the findings of previous studies (Hutzler et al., 2005; Taliaferro et al., 2015).

One possible reason for differences in self-efficacy scores is the motivation of the participants. Perhaps students in the GPETE program were not interested in working with students with disabilities, and that is why they chose the GPETE over the APETE program. So this fact may contribute to lower initial self-efficacy scores by GPETE students.

The main advantage of a campus-based practicum is that the host teacher education program can develop approaches that build strong connections between the practicums and campus courses, thus providing students with extensive opportunities to apply pedagogical knowledge to educational fieldwork (Fosnot, 1996). Because of this advantage, some teacher educators have been able to develop programs that provide clinical experiences where the central focus is on the connection between campus courses

and the practicum (Ball & Forzani, 2009). To implement this type of strategy, however, universities need to have campus-based laboratory schools on site that provide opportunities for teaching demonstrations and practice under the guidance of university faculty and staff (Fraser, 2007). Thanks to these kinds of initiatives, pre-service teachers can benefit from campus-based practicums that feature well-connected programs with a variety of implementation tools including both written and multimedia cases that simulate classroom situations. They also have the opportunity to assemble records of classroom practice, and engage in robust assignments where students are expected to implement and analyze their actions during their school placements. In addition, in this type of practicum program, the same individuals generally serve as both the methods instructors and field supervisors (Ball & Forzani, 2009).

As discussed above, pre-service teachers can gain invaluable experience teaching students with disabilities through participating in systematic practicums in APETE programs. Through observing others' teaching plan and strategies, developing lesson plan, teaching students with disabilities themselves, doing assessments, and getting feedback from others, including colleagues and professors, pre-service teachers can take advantage of many opportunities to acquire both mastery and vicarious experiences, as well as social persuasion (Bandura, 1977).Campus-based practicums can have a significant impact on improving pre-service PE teachers' self-efficacy toward teaching students with disabilities in GPE classes; participation in a campus-based practicum in and of itself could be evidence that participants in APETE programs that include a systematic campus-based practicum experience will have a higher self-efficacy in this area than participants in GPETE programs.

In contrast, participation in volunteer activities that can be defined as a kind of field-based practicum related to physical activity or sports appeared to have no significant effect on participants' self-efficacy toward teaching students with disabilities in GPE classes. This finding contrasts markedly with an earlier study by McDonnough and Matkins (2010), who found that field experiences in teacher education programs had a significantly positive effect on pre-service teachers' self-efficacy toward inclusive education. Volunteer experiences offer a number of advantages such as opportunities to teach students with disabilities directly and to observe the teaching strategies utilized by professionals such as teachers and trainers, thus providing vicarious experiences. However, a field-based practicum that includes volunteer opportunities needs to incorporate well-planned programs that are directly connected to university coursework to make these experiences more effective. It has been argued that field experiences need to be monitored by a supervisor such as a college professor or other specialist to make the experience a planned practicum and to connect it to teacher education coursework (Bullough, Hobbs, Kauchak, Crow, & Stokes, 1997; Feiman-Nemser & Buchmann, 1985; Zeichner, 2010). In this study, the effect of volunteer experience could be linked to a field-based practicum that had no significant effect in improving participants' self-efficacy scores toward teaching students with disabilities.

RQ4 & sub RQ4.1: Do sources of self-efficacy influence self-efficacy in pre-service PE teachers? If "yes", is there an effect due to the type of coursework offered in APETE programs and GPETE programs on pre-service physical education teachers' sources of self-efficacy toward teaching students with disabilities in general physical education

classes?

This study examined how pre-service teachers' scores on questions related to sources of self-efficacy reflected their actual self-efficacy toward teaching students with disabilities. Regarding the scores for sources of self-efficacy (RQ4), the null hypothesis was rejected. The results showed that pre-service teachers who had higher scores for sources of self-efficacy also had a higher self-efficacy mean. Neither participants in the APETE nor the GPETE programs showed high scores for sources of self-efficacy towards inclusive physical education. Therefore, this discussion focuses on what provide the effect on the scores in APETE programs.

Furthermore, this study found that sources of self-efficacy scores towards inclusive physical education were significantly higher in students took in more APE and special education credits. Looking at the results in more detail, courses related to teaching students with disabilities provided by APETE programs provided a positive effect for each of the sources of self-efficacy (mastery experiences, vicarious experience, and social persuasion). Even though the sources of self-efficacy scores did not show high scores in APETE programs, they had significantly higher scores than GPETE programs. It is not surprising to find a significantly positive effect on self-efficacy scores depending on these sources. APETE programs provide numerous specialized courses related to teaching students with disabilities, including APE, special education courses and campus-based practicums (Park et al., 2013), all of which are known to have a significant positive effect on pre-service teachers' self-efficacy toward teaching students with disabilities in GPE classes. As previous discussed, these specialized courses provide pre-service teachers with many opportunities to obtain mastery experience, vicarious experience and social

persuasion. According to Bandura (1997), the level of self-efficacy can be judged in terms of the sources of self-efficacy, so it is to be expected that well planned academic coursework and practicums will improve pre-service teachers' self-efficacy and attitude toward inclusive physical education through these courses given that the relationships between self-efficacy scores and those for sources of self-efficacy are all significantly positive. The results of previous studies have also confirmed the positive effect of APE courses and practicums on pre-service teachers' self-efficacy toward inclusive physical education (Hutzler et al, 2005; Jovanović et al, 2015, Taliaferro et al., 2015) based on their sources of self-efficacy scores. However, none of these researchers supported the relationship between these two scores with statistical evidence.

However, to improve self-efficacy towards inclusive physical education, both programs needs to provide pre-service teachers with specific courses that focus on inclusive physical education settings in order to improve pre-service teachers master experience, vicarious experiece and social persuade. These inclusive coures would be in addition to traditional APE courses in Korea that focus on teaching students with disabilities in separate environment. Several researchers in the area of special education have already reported that pre-service teachers can improve their self-efficacy toward teaching students with disabilities in inclusion classes through well-designed training for inclusion (Burton & Pac, 2009; Carroll et al., 2003; Lambe, 2007; Lancaster & Bain, 2007; Palmer, 2006). Therefore the findings of this study clearly indicated that GPETE programs should provide pre-service teachers with more opportunities to take specialized courses and have practical experiences related to inclusive physical education to improve pre-service teachers' level of self-efficacy toward inclusive physical education because

they are future physical education teachers who manage inclusive physical education in general schools.

Limitations

This study suffered from a number of limitations. First, the study was conducted using students enrolled in Korea teacher training programs. To determine the effect of courses of undergraduate PETE programs in general, it is necessary to expand this sample to include data from students with diverse cultural and regional backgrounds. This aspect was not considered for this study, so as yet the findings cannot be generalized to all pre-service PE teachers.

Second, the participants from the APETE programs may already had higher than average levels of self-efficacy toward teaching students with disabilities. Participants who choose to enroll in APETE programs already have the intention to work with students with disabilities before even beginning their studies, and that is why they chose to enroll in an APETE program. In contrast, participants who chose to enroll in the GPETE program most likely had no intention of working with children with students with disabilities, and as a result displayed lower levels of self-efficacy when asked about working with students with disabilities. Thus the data may have been skewed by self-selection of students to either the APETE or GPETE programs.

Third, in this study, response rate was 80.5 %, which is relatively high. However, it should be noted that a smaller number of 4th year students were in the pool of possible participants resulting in a smaller number of 4th year students taking the survey (in some programs no 4th year students took the survey. The survey was distributed in the fall semester, and in both APETE and GPETE programs many 4th year students tend to

prepare for Korea national teacher certification exam outside universities.

Fourth, ordinal data was collected on most of variables and then treated as if it were interval/ratio data for most analyses.

Fifth, this study used means as the primary way to make statistical comparisons when medians may have been more appropriate. For example, the mean for the number of APE credits taken was a value between 1-5, where each of these values actually represented a range of courses not the actual number of courses taken.

Finally, this study only explores the effect of the overall type of course offered by APETE and GPETE programs. The effect of individual units (e.g., physical education for severe disabilities or introduction to APE) on participants' self-efficacy toward inclusive physical education can therefore not be assumed.

Future Research

Future research in this area should be designed to build on the findings of previous research. Here, it would be useful to replicate the present study model using a larger group of GPETE programs in Korea, as in this study, pre-service teachers in only two GPETE programs participated. To consider more diverse cultural and regional backgrounds, it is necessary to recruit more participants in more GPETE programs from different parts of the country. As this study recruited only from Korean PETE programs, expanding it to include programs from other countries and areas of the world would enhance its value greatly.

Second, examining the impact of individual classes within each type of course, such as introduction to APE, APE for intellectual disability, introduction to special education, and educational technology for special education, would be a useful direction

for future research. In this study, only the general types of course were examined in terms of the effect they have on pre-service PE teachers' self-efficacy toward inclusive physical education. However, it is now necessary to move on to explore the effect of individual classes to assess the detailed effects of APETE or GPETE curricula toward teaching students with disabilities in GPE classes.

Third, it would be helpful to develop inclusive physical education programs in order to identify the effects of these specialized programs for inclusive physical education, which includes APE, special education courses, and campus-based practicums. It may be possible to analyze the effect of specialized programs on pre-service PE teachers' self-efficacy toward inclusive physical education by comparing control and treatment groups in GPETE programs.

Fourth, it is necessary to conduct in-depth qualitative studies through interviews. It may be possible to learn which of the specialized courses offered among APE, special education and practicums contributes the most to improving pre-service teachers' self-efficacy toward teaching students with disabilities. These studies offer a unique window into students' learning experiences and could shed new light on why the on-campus experience was so effective but the community experiences were not. Furthermore, it may be meaningful to ask about participants' thoughts related to the value of volunteer experiences that had a positive or negative effect on their mastery and vicarious experiences of self-efficacy.

Fifth, longitudinal data analysis needs to strength the relationship between individual courses and pre-service teachers' self-efficacy towards inclusive physical education. Assessing self-efficacy and sources of self-efficacy starting with 1st year

students and then re-assessing them every year in the program would provide more salient data to truly determine the impact of coursework in general and perhaps specific courses taken (e.g., courses taken in the 2nd compared to the 3rd year of the program)

Sixth, to adjust and balance the sample size, the number GPETE programs and ultimately the number of participants from GPETE programs should be relatively equal. Comparing five APETE programs to GPETE programs was clearly a limitation, and future research should endeavor to balance the number or APETE versus GPETE programs and number of participants from each of these programs. In addition, future research should make an effort to include more forth year participants. In this study, only 23.9% of participant was fourth grade. It might decrease self-efficacy scores in the data of this study.

Conclusion

This study investigated the effect of academic courses and practicums specifically designed for teaching students with disabilities on pre-service PE teachers' self-efficacy toward inclusive physical education. The major findings of this study were: (a) participants in APETE programs had higher self-efficacy scores; (b) taking more APE and special education credits had a significantly positive effect on pre-service PE teachers' self-efficacy scores toward inclusive physical education; (c) a campus-based practicum had a significantly positive effect, but volunteer experiences had no significant effect toward inclusive physical education; and (d) the effect of APE courses had a significantly positive effect in APETE programs, but a significantly negative effect in GPETE programs toward inclusive physical education.

Previous studies have reported that GPE teachers suffer from generally low levels

of self-confidence when asked to teach students with disabilities in GPE because of their lack of appropriate training and teaching experience (Oh & Lee, 1999; Roh, 2002; Roh & Oh, 2005). Research on the attitudes of GPE teachers in the United States and Europe have found similar neutral to negative attitudes towards including students with disabilities in GPE because of low levels of confidence (Ammah & Hodge, 2006; Hardin, 2005; Hersman & Hodge, 2010; Hutzler et al., 2005; Vickerman & Coates, 2009). Therefore, the inclusion of appropriate coursework that incorporates both theoretical knowledge and a teaching practicum in PETE programs should improve PE teachers' self-confidence in this area. The results of this study indicate that taking specialized courses related to teaching students with disabilities and a campus-based practicum could have a meaningful impact, significantly improving pre-service teachers' self-efficacy toward inclusive physical education. Further study should extend these results to examine the impact of individual classes within the types of courses to shed new light on the material that could most usefully be covered in these classes. In addition, this study's findings confirm that pre-service PE teachers would gain significant benefits from the opportunity to participate in inclusive physical education programs, including APE, special education, and a campus-based practicum, within regular GPETE programs.

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Appendix A

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

Purpose of the research study: The purpose of this study is to determine the effects of different undergraduate adapted physical education curricula on the self-efficacy of participants toward inclusive physical education.

What you will do in the study: If you agree to participate in this study, you will complete a paper-and-pencil survey in class at your university. You can skip any question on the survey that makes you uncomfortable. If you do not want to participate in this survey, you can simply sit in their chair and then hand in your non-completed survey with everyone else. , **Time required:** The study will require about 20 minutes of your time.

Risks: There are no anticipated risks in this study.

Benefits: There are no direct benefits to you for participating in this research study. However, the information from this survey will contribute to developing find the most effective curriculum for developing undergraduate students' self-efficacy toward inclusive physical education.

Confidentiality: The information that you give in the study will be handled anonymously and confidentially. There is no way I will be able to determine your name by the surveys you complete.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: : You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: Simply stop completing the survey if you chose to withdraw, and then hand in your incomplete survey with the rest of the group. It is not possible for us to delete your survey once it is completed and submitted, because your information will be submitted anonymously.

Payment: You will receive no payment for participating in the study.

If you have questions about the study, contact:

Younghwan Koh , Doctoral Student
Principal Investigator
Kinesiology Department, University of Virginia
4511 Briarwood Dr.
Charlottesville, VA 22911
Telephone: (213)407-1204
Email: yk9mg@virginia.edu

If you have questions about your rights in the study, contact:

Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb/sbs

Agreement:

I agree to participate in the research study described above.

Signature: _____ Date: _____

Appendix B

Situational-Specific Self-Efficacy and Sources of Self-efficacy toward Inclusion Students with Disabilities in Physical Education

Directions: This survey is designed to assess your self-efficacy or how confident you are in your ability to safely, successfully, and meaningfully include students with certain disabilities into your general physical education classes. First you will see descriptions of a student with either an intellectual, physical, or visual disability. These descriptions are followed by a series of questions about how confident you feel about performing certain tasks to include this student into your program. Answer these questions as if this student will participate in your general physical education class next week. The confidence scale for each question ranges from 1 (no confidence) to 5 (complete confidence). There are no correct answers, and each person will answer these questions differently. We only want to know how confident you feel in your ability to safely, successfully, and meaningfully include a student with disabilities like the ones described below into your general physical education class next week. The survey ends with some demographic questions. Note we are not asking for your name or any identifying information, so your participation is completely anonymous.

Part 1 – Intellectual Disability

****

Description of Student with an Intellectual Disability

Noah is a high school student with an intellectual disability, so he doesn't learn as quickly as his classmates. Because of his intellectual disability he also doesn't talk very well, so sometimes it is hard to understand what he is saying. However, he will point or gesture to help people know what he wants. He also has trouble understanding verbal directions, particularly when the directions have multiple steps. Noah likes playing the same sports as his classmates, but he does not do very well when playing actual games. Even though he can run, he is slower than his peers and tires easily. He can throw, but not very far, and he can catch balls that are tossed directly to him. He likes soccer, but he cannot kick a ball very far, and he never can remember where to go on the field. He also likes basketball, but he does not have enough skill to dribble without losing the ball, and he is not coordinated enough to make a basket. He also does not really know the rules for basketball or other team sports, and he easily gets distracted and off task during the game.

****

Please rate **how certain you are that you can do the things listed below** by writing the appropriate number next to each question using the following scale:

1	2	3	4	5
No Confidence	**low Confidence**	**Moderate Confidence**	**High Confidence**	**Complete Confidence**

Situational-Specific Self-Efficacy toward Students with Intellectual Disability

Question 1: You are conducting physical fitness testing with your 9th grade physical education class of 30 students that includes Noah.

Confidence (1-5)

1. How confident are you in your ability to **instruct peers to help Noah** during fitness testing? **(modifying instruction)** _____

Questions 2-4: You are conducting a team sport unit such as volleyball, basketball, or soccer to your 9th grade physical education class of 30 students that includes Noah. You are in the first week of the unit, and you are teaching the basic skills of the sport (ex, the bump, set, and serve in volleyball).

Confidence (1-5)

2. How confident are you in your ability to **modify your instructions to help Noah understand what to do** when teaching sport skills? (**modifying instruction)** _____

3. How confident are you in your ability to help Noah **stay on task** when teaching sport skills? **(managing behavior)** _____

4. How confident are you in your ability to **instruct peers to help Noah** when teaching sport skills? **(modifying instruction)** _____

Questions 5-6: You are conducting a team sport unit such as volleyball, basketball, or soccer to your 9th grade physical education class of 30 students that includes Noah. You are in the last week of the unit, and you are now having your students play the actual game.

Confidence (1-5)

5. How confident are you in your ability to help Noah **stay on task** during the game? **(managing behavior)** _____

6. How confident are you in your ability to **instruct peers to help Noah** during the game? **(modifying instruction)** _____

Source of Self-Efficacy toward including students with Intellectual Disability

Mastery Experiences

Please rate the **level of success you have experienced** in doing the tasks listed below when including a student with intellectual disability in your general physical education classes by placing a check in the appropriate box.

Do you expect how successful have you been at performing the following tasks for students with intellectual disability who are included in your general physical education classes?

	I do not have any experience doing this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
1. Managing behaviors						
2. Modifying instructions						

Vicarious experiences:

Pease rate the **level of success of other PE teachers you have observed** at doing the tasks listed below when including a student with a intellectual disability in their general physical education classes by placing a check in the appropriate box.

Do you expect how successful are other PE teachers you have observed at performing the following tasks for students with intellectual disability who are included in general physical education classes?

	I have not seen other PE teachers do this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
1. Managing behaviors						
2. Modifying instructions						

Social Persuasion

Please rate what **others (e.g. teachers, parents, colleagues, supervisors, principals) have told you regarding your capabilities** to do the tasks listed below when including a student with intellectual disability in your general physical education classes by placing a check in the appropriate box.

Do you expect what have others told you about your capabilities to perform the following tasks for students with intellectual disability who are included in your general physical education classes?

	I have not been told anything about my capabilities	Not at all capable	Not very capable	Both capable and not capable	Moderately capable	Very capable
1. Manage behaviors						
2. Modify instructions						

Part 2 – Physical Disability

Below you will see a description of a student with a physical disability followed by a series of questions about how confident you feel about doing certain tasks to include this student. As was the case above, answer these questions as if this student is going to be in your general physical education class next week. The competency scale for each question is from 1 (no confidence) to 5 (complete confidence).

****

Description of a Student with a Physical Disability

Ashton is a high school student with a spinal cord injury. He cannot walk, so instead he pushes himself in his wheelchair to get around. Ashton likes playing the same sports as his classmates, but he does not do very well when playing the actual game. Even though he can push his wheelchair, he is slower than others and tires after pushing his chair for only 1-2 minutes. He can pass and serve a volleyball, but not far enough to get it over the net. He can catch balls tossed straight to him. However, he does not have the upper body strength to shoot a basketball high enough to make a regulation basket. Because he cannot use his legs, he cannot kick a soccer ball, but he can push the ball forward with his chair.

****

Please rate **how certain you are that you can do the things listed below** by writing the appropriate number next to each question using the following scale:

1	2	3	4	5
No Confidence	**low Confidence**	**Moderate Confidence**	**High Confidence**	**Complete Confidence**

Situational-Specific Self-Efficacy toward Students with Physical Disability

Questions 1-4: You are conducting physical fitness testing with your 9th grade physical education class of 30 students that includes Ashton.

Confidence (1-5)

1. How confident are you in your ability to **create individual goals for Ashton** during fitness testing? (**Modify instructions)** _____

2. How confident are you in your ability to **modify the test** for Ashton? **(Assess motor skills) _____**

3. How confident are you in your ability to **instruct peers to help Ashton** during fitness testing? (**Modify instructions) _____**

4. How confident are you in your ability to **make the environment safe** for Ashton during fitness testing? Creating a safe environment **(Create a safe environment) ____**

Questions 5-8: You are conducting a team sport unit such as volleyball, basketball, or soccer to your 9th grade physical education class of 30 students that includes Ashton. You are in the first week of the unit, and you are teaching the basic skills of the sport (ex, the bump, set, and serve in volleyball.

Confidence (1-5)

5. How confident are you in your ability to **make modifications to sports skills** if Ashton cannot perform like his peers when you are teaching sport skills? (**Modify instructions) _____**

6. How confident are you in your ability to **make the environment safe** for Ashton when teaching sport skills? **(Create a safe environment) _____**

7. How confident are you in your ability to **modify equipment** to help Ashton when teaching sport skills? **(Modify equipment) _____**

8. How confident are you in your ability to **instruct peers to help Ashton** when teaching sport skills? (**Modify instructions) _____**

Questions 9-10: You are conducting a team sport unit such as volleyball, basketball, or soccer to your 9th grade physical education class of 30 students that includes Ashton. You are in the last week of the unit, and you are now having your students play the actual game.

Confidence (1-5)

9. How confident are you in your ability to **make the environment safe** for Ashton during the game? **(Create a safe environment) _____**

10. How confident are you in your ability to **instruct peers to help Ashton** when teaching sport skills? (**Modify instructions) _____**

Source of Self-Efficacy toward including students with Physical Disability

Mastery Experiences

Please rate the **level of success you have experienced** in doing the tasks listed below when including a student with physical disability in your general physical education classes by placing a check in the appropriate box.

Do you expect how successful have you been at performing the following tasks for students with physical disability who are included in your general physical education classes?

	I do not have any experience doing this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
1.Modifying equipment						
2.Creating a safe environment						
3. Modifying instructions						
4. Assessing motor skills						

Vicarious experiences:

Pease rate the **level of success of other PE teachers you have observed** at doing the tasks listed below when including a student with physical disability in their general physical education classes by placing a check in the appropriate box.

Do you expect how successful are other PE teachers you have observed at performing the following tasks for students with physical disability who are included in general physical education classes?

	I have not seen other PE teachers do this	Not at all successful (Less than 15% of the time)	Not very successful (15-39% of the time)	Somewhat successful (40-60% of the time)	Moderately successful (61-85% of the time)	Very successful (More than 85% of the time)
1.Modifying equipment						
2.Creating a safe environment						
3. Modifying instructions						
4. Assessing motor skills						

Social Persuasion

Please rate what **others (e.g. teachers, parents, colleagues, supervisors, principals) have told you regarding your capabilities** to do the tasks listed below when including a student with physical disability in your general physical education classes by placing a check in the appropriate box.

Do you expect what have <u>others told you about your capabilities</u> to perform the following tasks for students with physical disability who are included in your general physical education classes?

	I have not been told anything about my capabilities	Not at all capable	Not very capable	Both capable and not capable	Moderately capable	Very capable
1.Modify equipment						
2.Create a safe environment						
3. Modify instructions						
4. Assess motor skills						

Part 3 – Demographic Questions

1. Gender Male ( ), Female ( )

2. Your year in college (e.g., (3rd year, 4th year) ( )

3. Type of program?

    1) Adapted physical education teacher education ( )

    2) General physical education teacher education ( )

4. Does your program provide campus-based practicums?

    Yes ( ), No( )

5. If yes, how long have you participated in the practicums?

    1) No experience ( )

    2) Under 1 year ( )

    3) 1 year ~ 2 years ( )

    4) 2 years ~ 3 years ( )

    5) 3 years ~ 4 years ( )

6. How many APE credits have you taken?

    1) Under 5 ( )

    2) 5 credits ~ 15 credits ( )

    3) 16 credits ~ 25 credits ( )

    4) 26 credits ~ 35 credits ( )

    5) Above 35 credits ( )

7. Have you taken special education classes? Yes ( ), No ( )

8. If yes, how many special education credits have you taken?

    1) Under 10 ( )

    2) 10 credits ~ 20 credits

    3) 21 credits ~ 30 credits

    4) 31 credits ~ 40 credits

    5) Above 40 credits

9. Have you had volunteer experiences related to sports or physical activities for people with disabilities? (e.g., Special Olympics, national or regional competitions and regional recreation activities) Yes ( ), No ( )

10. If yes, how many times have you volunteered?

    1) Under 5 ( )

    2) 5 times ~ 10 times

    3) 11 times ~ 15 times

    4) 16 times ~ 20 times

    5) Above 20 times

Thank you.

Appendix C

통합체육수업에 대한 장애유형별 자기효능감(Self-Efficacy) 검사

통합체육: 학교체육, 신체활동 혹은 스포츠 현장에서 장애인들을 비장애인들의 프로그램에 참여시켜 신체적 발달과 사회성 향상을 목표로 하는 수업형태.

자기효능감: 어떠한 과제를 자신의 능력으로 성공적으로 해결 할 수 있다는 자기 자신의 신념과 기대감.

이 설문은 일반학교 및 체육프로그램 현장에서 특정장애아동의 통합수업에 관한 자기 효능감 혹은 자신감을 측정하기 위해 개발되었습니다. 각 설문문항에 앞서 제시된 지적장애, 지체장애, 그리고 시각장애아동에 대한 특징을 읽어주십시오. 각 문항의 범위는 1(전혀 자신감이 없다)에서 5(매우 자신감이 있다)까지 입니다.이 문항들에 정답은 없으며 모든 참여자의 응답이 다를 수 있습니다. 이 설문은 익명으로 진행 됩니다.

1. 지적장애

고등학교 1학년 학생인 은철이는 지적장애를 가지고 있습니다. 그래서 그는 또래의 다른 친구들 만큼의 습득력을 보이지 못합니다. 지적장애로 인해 은철이는 언어능력이 저하되어 있습니다. 그리하여 종종 교사와 학우들은 그의 말을 이해하기 힘들 때가 많습니다. 그러나 그는 손가락으로 사물을 가르키거나 제스쳐를 보이며 그의 의도를 전달하려 노력합니다. 은철이는 또한 언어적 지시를 이해하는데 어려움을 보입니다. 특히 응용력이 요구되거나 여러 과정을 거쳐야 이해가 가능한 지시사항은 전혀 인지하지 못합니다.

은철이는 그의 학우들이 즐기는 스포츠를 좋아합니다. 그러나 실제 경기에서 그는 좋은 운동능력과 경기 이해도를 보이지 못합니다. 그는 달릴 수는 있으나 그의 친구들에 비해 현격히 느린 스피드를 보이며 지구력이 좋지 않아 십게 지칩니다. 그는 공을 던질 수는 있으나 멀리는 던지지 못합니다. 그에게 공을 던질 때는 반드시 언더헨드로 살짝 그리고 직접 토스해 주어야만 그가 공을 잡을 수 있습니다. 축구 킥도 마찬가지로 은철이는 공을 찰 수는 있으나 멀리 차지 못합니다. 그리고 그가 어느 방향으로 찾는지 기억하지 못합니다. 특히 농구를 매우 좋아하지만 드리블 기술이 좋지 않아 공을 자주 옆으로 흘립니다. 가장 큰 문제는 그가 농구를 하기에 충분한 협응력을 갖추지 못했다는 점입니다. 그는 농구 뿐만이 아니라 다른 팀 스포츠 규칙에 대한 이해를 전혀 하지 못합니다. 그로 인해 그는 경기 중에 십게 산만해지며 자신의 임무에서 벗어나는 행동을 보입니다.

각 문항을 읽고 자신이 생각하는 자신감(Confidence)의 수준을 적어주세요.				
1	2	3	4	5
전혀 자신감이 없다.	자신감이 낮다.	중간이다.	자신감이 높다.	매우 자신감이 높다.

문항 1: 당신은 고등학교 1학년 학생들을 대상으로 은철이를 포함한 30명의 학생들에게 체력검사를 하고 있습니다.

Confidence

(1-5)

1. 당신은 비장애학생들에게 은철이를 도와 줄 수 있도록 당신의 현재 능력으로 **체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까? _____

문항 2-4: 당신은 은철이를 포함한 30명의 고등학교 1학년 학생들과 배구, 농구, 축구와 같은 팀 스포츠를 진행하려 합니다. 당신은 현재 첫 수업을 진행 중이며 가장 기본적인 스포츠 기술을 지도하고 있습니다.

Confidence

(1-5)

2. 스포츠 기술 지도 시 은철이가 자신이 무엇을 배우는지 이해 할 수 있도록 당신의 현재 능력으로 **비장애아동에게 제공하는 지도방식을 은철이의 장애정도에 따라 변형/수정**할 자신이 얼마나 있습니까?

_____

3. 당신은 당신의 현재 능력으로 은철이가 스포츠 기술과 관련된 **과업수행을 비장애학생과 함께 지속**할 수 있도록 지도 할 자신이 얼마나 있습니까?

_____

4. 당신은 당신의 현재 능력으로 비장애학생들에게 은철이를 도와 줄 수 있도록 **체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까?

_____

문항 5-6: 당신은 은철이를 포함한 30명의 고등학교 1학년 학생들과 배구, 농구, 축구와 같은 팀 스포츠를 진행하려 합니다. 당신은 현재 마지막 수업을 진행 중이며 실제 스포츠 경기를 진행하고 있습니다.

Confidence

(1-5)

5. 당신은 당신의 현재 능력으로 은철이가 실제경기에서 **과업수행을 비장애학생과 함께 지속**할 수 있도록 지도 할 자신이 있습니까?

_____

6. 당신은 당신의 현재 능력으로 비장애학생들에게 경기 중 은철이를 **도와 줄 수 있도록 체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까?

_____

지적장애인에 대한 자아효능감 요소에 관한 문항

숙달경험 (mastery experiences)

당신이 지적장애학생을 통합체육환경에서 지도 한다면 얼마만큼의 숙련된 지도를 할 수 있을 것으로 예상됩니까? (mastery experiences)

	나는 단 한번도 성공적인 경험을 하지 못할 것이다.	전반적으로 성공적인 경험을 하지 못할 것이다. (전체 수업시간의 15%미만)	매우성공적인 경험을 하지 못할 것이다. (전체수업시간의 15 -39%)	약간 성공적인 경험을 할 것이다. (전체수업시간의 40-60%)	중간 정도 수준으로 성공경험을 할 것이다. (전체수업시간의 61 -85%)	매우 성공적인 경험을 할 것이다. (전체시간의 85% 이상)
1. 행동 관리						
2. 지도법 변형						

간접경험 (vicarious experiences

당신이 지적장애학생의 통합체육을 관찰 하면서 성공적인 간접경험을 할 수 있을 것으로 예상됩니까? (vicarious experiences)

	나는 단 한번도 성공적인 경험을 하지 못할 것이다.	전반적으로 성공적인 경험을 하지 못할 것이다. (전체 수업시간의 15%미만)	매우성공적인 경험을 하지 못할 것이다. (전체수업시간의 15-39%)	약간 성공적인 경험을 할 것이다. (전체수업시간의 40-60%)	중간 정도 수준으로 성공경험을 할 것이다. (전체수업시간의 61-85%)	매우 성공적인 경험을 할 것이다. (전체시간의 85% 이상)
1. 행동 관리						
2. 지도법 변형						

사회적 설득 (social persuasion)

당신은 지적장애학생을 통합체육환경에서 지도 할 때 타인(교사, 일반체육 혹은 특수체육 전문가)들로부터 당신의 지도능력에 대해 조언을 받을 수 있을 것이라고 생각하십니까?

	전혀 받지 못할 것이다.	매우 가능하지 않을 것이다.	가능하지 않을 것이다.	어느 정도 가능할 것이다.	가능할 것이다.	매우 가능할 것이다.
1. 행동 관리						
2. 지도법 변형						

2. 척수손상

고등학교 1학년 학생인 건우는 척수손상을 가진 고등학생입니다. 건우는 보행을 하지 못하며 이동 시 자신이 직접 휠체어를 이용합니다. 건우는 그의 학우들이 즐기는 스포츠를 좋아합니다. 그러나 그는 실제경기에서 좋은 운동능력과 경기 이해도를 보이지 못합니다. 건우는 가진이 직접 휠체어를 조정할 수는 있으나 그는 다른 학우들 보다 이동속도가 느리며 1~2분 조정 후 지치는 모습을 보입니다. 그는 배구공으로 패스와 서브를 할 수 있으나 네트를 넘기기에 그의 힘은 매우 부족합니다. 그는 토스된 공을 잡을 수 있습니다. 하지만 건우는 일반 농구골대에서 슛을 성공 시킬 수 있을 만큼의 충분한 상체 힘을 가지고 있지 못합니다. 그는 하반신을 사용하지 못하므로 공을 찰 수는 없지만 휠체어의 움직임을 이용하여 공을 이동시킬 수는 있습니다.

각 문항을 읽고 자신이 생각하는 자신감(Confidence)의 수준을 적어주세요.				
1	2	3	4	5
전혀 자신감이 없다.	**자신감이 낮다.**	**중간이다.**	**자신감이 높다.**	**매우 자신감이 높다.**

문항 1-4: 당신은 고등학교 1학년 학생들을 대상으로 건우를 포함한 30명의 학생들에게 체력검사를 하고 있습니다.

Confidence

(1-5)

1. 당신은 체력검사 동안 건우만을 위한 **개별목표점수**를 당신의 현재 능력으로 만들어 낼 자신이 있습니까?

_____

2. 당신은 당신의 현재 능력으로 건우만을 위해 비장애학생들에게 적용되는 **검사도구 (혹은 검사종목)를 변형**할 자신이 있습니까?

_____

3. 당신은 비장애학생들에게 건우를 도와 줄 수 있도록 당신의 현재 능력으로 **체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까?

_____

4. 당신은 당신의 현재 능력으로 비장애학생들과 함께하는 체력검사에서 건우를 위한 **안전한 검사환경**을 만들 자신이 있습니까?

_____

문항 5-8: 당신은 건우를 포함한 고등학교 1학년 학생들을 대상으로 배구, 농구, 축구와 같은 팀 스포츠를 진행하려 합니다. 당신은 현재 첫 수업을 진행 중이며 가장 기본적인 스포츠 기술을 지도하고 있습니다.

Confidence

(1-5)

5. 만약 스포츠 기술을 가르치던 중 건우가 비장애아동과 같은 수행을 하지 못한다면 당신의 현재 능력으로 건우의 장애유형과 정도에 맞춰 **지도방법과 장비를 변형**할 수 있는 자신감이 얼마나 있습니까?

_____

6. 당신은 당신의 현재 능력으로 건우가 비장애학생들과 함께 스포츠 기술을 **안전하게 습득할 수 있는 환경**을 만들 자신이 있습니까?

_____

7. 건우의 스포츠 기술 습득을 위해 장비를 변형하려고 합니다. 현재 당신의 능력으로 어느 정도 자신이 있습니까?

_____

8. 당신은 당신의 현재 능력으로 스포츠 기술 수업 중 비장애학생들이 건우를 **도와 줄 수 있도록 체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까?

_____

문항 9-10: 당신은 건우를 포함한 30명의 고등학교 1학년 학생들과 배구, 농구, 축구와 같은 팀 스포츠를 진행하려 합니다. 당신은 현재 마지막 수업을 진행 중이며 실제 스포츠 경기를 진행하고 있습니다..

Confidence

(1-5)

9. 당신은 당신의 현재 능력으로 실제 스포츠 경기에서 건우에게 **안전한 환경을 제공**할 수 있는 자신이 있습니까?

_____

10. 당신은 당신의 현재 능력으로 실제 스포츠 경기 중 비장애학생들이 건우를 **도와 줄 수 있도록 체계적이고 구체적인 사전 교육**을 할 자신이 얼마나 있습니까?

_____

지체장애학생에 대한 자아효능감 요소에 관한 문항

숙달경험 (mastery experiences)

당신이 지체장애학생을 통합체육환경에서 지도 한다면 얼마만큼의 숙련된 지도를 할 수 있을 것으로 예상됩니까?

	나는 단 한번도 성공적인 경험을 하지 못할 것이다.	전반적으로 성공적인 경험을 하지 못할 것이다. (전체 수업시간의 15%미만)	매우성공적인 경험을 하지 못할 것이다. (전체수업시간의 15-39%)	약간 성공적인 경험을 할 것이다. (전체수업시간의 40-60%)	중간 정도 수준으로 성공경험을 할 것이다. (전체수업시간의 61-85%)	매우 성공적인 경험을 할 것이다. (전체시간의 85% 이상)
1. 행동 관리						
2. 지도법 변형						

	나는 단 한번도 성공적인 경험을 하지 못할 것이다.	전반적으로 성공적인 경험을 하지 못할 것이다. (전체 수업시간의 15%미만)	매우성공적인 경험을 하지 못할 것이다. (전체수업시간의 15-39%)	약간 성공적인 경험을 할 것이다. (전체수업시간의 40-60%)	중간 정도 수준으로 성공경험을 할 것이다. (전체수업시간의 61-85%)	매우 성공적인 경험을 할 것이다. (전체시간의 85% 이상)
1. 장비변형						
2. 안전한 환경 조성						
3. 지도법 변형						
4. 운동기술지도						

간접경험 (vicarious experiences

당신이 지체장애학생의 통합체육을 관찰 하면서 성공적인 간접경험을 할 수 있을 것으로 예상됩니까? (vicarious experiences)

	나는 단 한번도 성공적인 경험을 하지 못할 것이다.	전반적으로 성공적인 경험을 하지 못할 것이다. (전체 수업시간의 15%미만)	매우성공적인 경험을 하지 못할 것이다. (전체수업시간의 15-39%)	약간 성공적인 경험을 할 것이다. (전체수업시간의 40-60%)	중간 정도 수준으로 성공경험을 할 것이다. (전체수업시간의 61-85%)	매우 성공적인 경험을 할 것이다. (전체시간의 85% 이상)
1. 장비변형						
2. 안전한 환경 조성						
3. 지도법 변형						
4. 운동기술지도						

사회적 설득 (social persuasion)

당신은 지체장애학생을 통합체육환경에서 지도 할 때 타인(고사, 일반체육 혹은 특수체육 전문가)들로부터 당신의 지도능력에 대해 조언을 받을 수 있을 것이라고 생각하십니까?

	전혀 받지 못할 것이다.	매우 가능하지 않을 것이다.	가능하지 않을 것이다.	어느 정도 가능할 것이다.	가능할 것이다.	매우 가능할 것이다.
1. 장비변형						
2. 안전한 환경 조성						
3. 지도법 변형						
4. 운동기술지도						

Demographic Question

다음의 질문에 답해주세요

1. 성별 남 ( ), 여 ( )

2. 학년 ( )

3. 귀하의 학과는? 특수체육교육학과( ), 일반체육학과( )

4. 귀하의 학과에서는 장애아동/학생 체육교실을 운영합니까? 예( ), 아니오( )

5. 만약 운영한다면 얼마의 기간 동안 참여하셨습니까?

1) 참가경험 없음( )

2) 1 년 미만( )

3) 1 년 ~ 2 년 ( )

4) 2 년 ~ 3 년( )

5) 3 년 ~ 4 년( )

6. 특수체육관련 과목을 몇 학점 수강하셨습니까?

1) 5 학점 미만 ( )

2) 5 ~ 15 학점 ( )

3) 16 ~ 25 학점 ( )

4) 26 ~ 35 학점 ( )

5) 35 학점 이상 ( )

7. 특수교육학 수업을 수강하셨습니까? 예( ), 아니오( )

8. 수강하셨다면 몇 과목 수강하셨습니까?( )

1) 10 미만 ( )

2) 10 ~ 20 학점 ( )

3) 21 ~ 30 학점 ( )

4) 31 ~ 40 학점 ( )

5) 40 학점 이상 ( )

9. 장애인체육과 관련된 외부봉사활동(대학에서 제공하는 프로그램은 제외한 복지관, 일반/특수학교, 전국대회를 포함한 모든 대회) 을 해본 적이 있습니까?

예 ( ), 아니오 ( )

10. 봉사활동 경험이 있다면 대략의 횟수를 알려주세요

1) 5회 미만 ( )

2) 5 ~ 10 회 ( )

3) 11 ~ 15 회 ( )

4) 16 ~ 20 회 ( )

5) 20 회 이상 ( )

Appendix D

UNIVERSITY of VIRGINIA

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
INSTITUTIONAL REVIEW BOARD FOR THE SOCIAL AND BEHAVIORAL SCIENCES

In reply, please refer to: Project # 2014-0350-00

August 13, 2015

Younghwan Koh
Martin Block
Human Services
4511 Briarwood Dr.
Charlottesville, VA 22903

Dear Younghwan Koh and Martin Block:

The Institutional Review Board for the Behavioral Sciences has approved your August 12, 2015 modification request to your exempted research project entitled "Undergraduate Students' Self-Efficacy toward Inclusive Physical Education." You may proceed with this study.

This project # 2014-0350-00 has been exempted for the period August 13, 2015 to September 28, 2018. If the study continues beyond this period, you will need to submit a continuation request to the Review Board. If you make changes in the study, you will need to notify the Board of the changes.

Sincerely,

Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences

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