TEACHERS' KNOWLEDGE AND IMPLEMENTATION OF LEAST RESTRICTIVE ENVIRONMENT IN PHYSICAL EDUCATION

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by

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ABSTRACT

The implementation of the Least Restrictive Environment mandate has been challenging since its conception in 1975, with little recent research on its use in physical education. This legislation states that students with disabilities must be educated with their peers to the maximum extent possible and if a student cannot satisfactorily learn in a general education setting, then a continuum of alternative placements must be provided. However, it is not clear how the mandate is currently being implemented in U.S. schools. Therefore, this study's purpose was to examine physical education and adapted physical education teachers' implementation of Least Restrictive Environment by examining their knowledge of related law, how they practice decision-making regarding placement, and the barriers that prevent them from best implementing the law.

A mixed methods design examined the knowledge and implementation of Least Restrictive Environment of 30 physical education and 48 adapted physical education teachers. First, participants completed a validated and reliable survey. Five physical education and seven adapted physical education teachers were then purposively selected for interviews to gain more understanding of the teachers' experiences with Least Restrictive Environment and the development and implementation of individual education programs.

A multivariate analysis of variance revealed significant differences between physical education and adapted physical education teachers in related knowledge and implementation, $F(44, 33) = 2.60$, $p < .005$; Wilk's $\Lambda = .224$, partial $\eta 2 = .78$. A significant follow-up univariate test ($F(1, 76) = 23.48$, $p < .001$; partial $\eta^2 = .24$) indicated a difference in perceived understanding of Least Restrictive Environment

between groups, with physical education and adapted physical education teachers rating their understanding 3.70 (*SD* = .84) and 4.48 (*SD* = .58), respectively (with five being "completely understand"). Further, 23% of physical education teachers conflated inclusion with the law's intent of Least Restrictive Environment to only 4% of adapted physical education teachers. There was a significant difference in the level of involvement in decision-making, F (1, 76) = 42.40, $p < .001$; partial $\eta^2 = .36$. With a score of 100 being complete involvement, physical education teachers were generally less involved than their counterparts with a score of 25.47 (*SD* = 37.16) to the adapted physical education teachers' score of 71.98 (*SD* = 38.89). Among all teachers, the largest barriers to implementation were staff knowledge on how to educate students in Least Restrictive Environment (*M* = 62.46, *SD* = 29.22) and access to support staff (*M* = 63.76, *SD* = 27.30), with a rating of 100 being "completely adequate".

Constant comparison and analytical induction of the qualitative data revealed four themes to contextualize the quantitative data: 1) *importance of teacher training*, 2) *varying degrees of understanding of special education legislation*, 3) *implementation of Least Restrictive Environment, individual education programs, and physical education services*, and 4) *barriers to Least Restrictive Environment implementation*. *Importance of teacher training* illustrated the differences in coursework foci between physical education and adapted physical education teachers, which in part, helped explain the *varying degrees of understanding of special education legislation* (i.e., why adapted physical education teachers tended to know more about the law than their counterparts). Most of the coursework that physical education teachers received during teacher training revolved around modifications rather than learning about special education law. Further,

implementation of Least Restrictive Environment, individual education programs, and physical education services revealed a stark contrast in involvement regarding decision-making, which heavily favored the adapted physical education teachers. This lack of involvement in the decision-making process was often perceived as marginalization by physical education teachers. Likewise, similar *barriers to Least Restrictive Environment implementation* were reported by the adapted physical education teachers, indicating that their physical education teachers prevented appropriate placement through inappropriate practices and an unwillingness to teach students.

These results create a clearer picture of current Least Restrictive Environment implementation. The data show that, while adapted physical education teachers are generally more equipped than their counterparts, there remains miseducation on the intent of the law as well as the presence of barriers that prevent appropriate practice. Teacher training programs are urged to target the lack of knowledge through coursework and practicum experiences, and build an expectation that teachers must be prepared to advocate for students in whatever workplace they find themselves in.

Keywords: Adapted physical education, physical education, special education legislation, Least Restrictive Environment

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APPROVAL OF THE DISSERTATION

This dissertation, Teachers' Knowledge and Implementation of Least Restrictive Environment in Physical Education, has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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DEDICATION

This project is dedicated to every student to whom I have had the honor to provide adapted physical education.

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CHAPTER 1

INTRODUCTION

Since the enactment of the Education for All Handicapped Children (PL 94-142) in 1975, it has been suggested that educators have struggled placing students with disabilities (hereafter referred to as students) in their federally mandated least restrictive environments (LRE) for physical education (PE) (Block, 2016; Columna, Davis, Lieberman, & Lytle, 2010; Jansma & Decker, 1990; Lieberman, Cavanaugh, Haegele, Aiello, & Wilson, 2017). With PL 94-142 now in its current iteration as the Individuals with Disabilities Education Improvement Act ([IDEIA], 2004), the LRE provision states that,

> (i) To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are nondisabled; and
>
> (ii) Special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (IDEIA, Rules and Regulations, Subpart B, Sec. 300.114)

As described above, the two pillars of LRE are that students should be educated with their typically developing peers to the maximum extent appropriate and that such students should only be removed from general education settings if they cannot achieve their

educational program goals with supplement supports (such as support staff, assistive equipment). The LRE provision called for use of a continuum of alternative placements that would satisfy a student's educational needs should the general education setting fail to do so. Many different continua of alternative placements for PE services emerged, all drawing heavily from special education (Block et al., 1992) and most including a variation of more and less restrictive settings across the continuum. More restrictive placements tended to be adapted physical education (APE) services in self-contained settings whereas less restrictive placements allowed students to receive PE services—specially designed if necessary (i.e., APE)—in general educational settings.

Historically, however, the interpretation and implementation of LRE in public schools had "proven difficult at best" (Jansma et al., 1990, p. i). For example, there was confusion between LRE and mainstreaming, a practice of integrating students with disabilities with typically developing students in regular education settings (Dunn & Craft, 1985). This led to a flawed practice called "counterfeit mainstreaming" (Jansma et al., 1990), where students were pushed into a regular PE setting without appropriate supports in place. Despite these issues associated with LRE implementation, Decker (1993) urged that "failures of least restrictive environment placement are failures of implementation rather than conception" (p. 1). To better understand public education's implementation of LRE, Jansma and Decker conducted a large, national study entitled Project LRE/PE (1990, 1992).

Data from Project LRE/PE were collected during the 1988-89 school year from 470 schools and focused the number of placement options in the U.S., the status of such alternative placements, and factors that influenced the movement of a student from a

more to less restrictive placement. While this study is described and critiqued in greater detail in Chapter 2, this important work served in highlighting how many LRE continua of alternative placements were used in the schools (26 variations, with placement in general PE most prevalent) and what factors (i.e., barriers) were influential in the LRE decision-making process. The biggest factors Jansma and Decker (1990) reported were test scores (e.g., motor skill scores), staff recommendations (e.g., from special educators), student-related factors (e.g., disability type/severity), class-related factors (e.g., class size), and administrative factors (e.g., budgetary considerations).

While data from Jansma et al.'s (1990, 1992) original work with Project LRE/PE provided a much-needed understanding of LRE practices in the late 1980s, Decker and Jansma (1995) later reported that in most of the cases, students received PE in the general class setting with either little or no access to APE. And now, nearly 30 years later, scholarly opinion is still that students are not correctly placed in their LRE (see Block, 2016; Columna, et al., 2010; Lieberman et al., 2017). To this end, new research is necessary to collect empirical data on the issues of LRE implementation. Further, examination of PE and APE teachers' knowledge and implementation of LRE through a theory-based, mixed methods research design would add greater depth to the extant literature and may provide insight for how teacher training programs can start rectifying the issues.

The Present Study

The purpose of the present study was to utilize a mixed methods design to examine how PE and APE teachers make decisions regarding LRE implementation and what factors influence those practices. The theoretical frameworks that were used as a

guiding lens for the study were the social cognitive theory (SCT) and the occupational socialization theory (OST).

Bandura's (1986) SCT is described as a function of a dynamic and multi-directional interaction between an individual (i.e., personal factors), the environment, and behavior—also referred to as triadic reciprocal determinism (Bandura, 2001). When applied to the present study, personal factors (i.e., teachers' knowledge of LRE), environmental factors (e.g., barriers to LRE), and behavioral factors (i.e., implementation of LRE decision-making) and their influences on each other can be examined. Thus, SCT can provide an overarching theoretical framework to organize and to broadly understand the study's results—to understand how certain factors, like barriers to LRE, influence behaviors, like implementation of LRE, and vice-versa. However, while SCT can be useful in this respect, the same theory does not allow for a nuanced understanding of all the teachers' experiences and how those experiences shape their perspectives and behaviors on LRE implementation. To this end, another theory, OST, can complement SCT.

From a socialization perspective, OST has been utilized to investigate the recruitment, training, and ongoing socialization of PE teachers (Richards, Templin, & Graber, 2014; Templin & Richards, 2014) and APE teachers (Wilson, Richards, & Kelly, 2017). Using this theory, the socializing experiences of individuals' formative development (early childhood through adolescence), recruitment into formal teacher training, and employment in the schools can be examined to better understand what drives perspectives on LRE knowledge and implementation. Thus, this additional perspective provides a deeper look at teachers' experiences than the SCT alone. It should

further be noted that the OST alone cannot provide the broader perspective and organization that SCT affords, and so they should be complementarily applied.

Research Aims and Questions

To achieve the present study's purpose, previous LRE/PE literature, theory, and special education legislation were carefully considered in the creation of the following research aims and questions. As such, to comprehensively examine issues of LRE implementation, the purpose and intent of PE and individual education programs (IEPs)—as mandated by IDEIA—were also targeted in the research aims.

Aim 1: PE/APE teachers' knowledge on relevant IDEIA mandates

a. RQ1: What do PE/APE teachers know about PE's purpose and intent, according to IDEIA?
b. RQ2: What do PE/APE teachers know about the purpose and intent of IEPs, regarding PE/APE?
c. RQ3: What do PE/APE teachers know about LRE's purpose and intent?

Aim 2: The actual implementation of decision-making essential to LRE placement

a. RQ4: How do PE/APE teachers implement PE's intent for students with disabilities (i.e., what do the PE/APE services for students look like)?
b. RQ5: How do PE/APE teachers implement IEP decision-making in their teaching situations?
c. RQ6: How do PE/APE teachers implement LRE decision-making in their teaching situations?

Aim 3: Self-assessment of alignment between implementation of LRE-related decisions and law's intent, and barriers that influence those decisions

a. RQ7: To what degree do teachers believe actual implementation of PE/APE services for students matches IDEIA's intent?
b. RQ8: To what degree do teachers believe actual implementation of IEP for PE/APE matches IDEIA's intent?
c. RQ9: To what degree do teachers believe actual implementation of LRE placement decision-making matches IDEIA's intent?
d. RQ10: What are barriers to LRE decision-making and how do they influence PE/APE teachers?

CHAPTER 2

REVIEW OF THE LITERATURE

Due to the nature and content of the present study, a thorough review of special education legislation, applicable theoretical frameworks, and the appropriateness of mixed methods study designs was necessary. For this reason, Chapter 2 covers: 1) the history of special education law entitled the Individuals with Disabilities Education Improvement Act with specific attention given to Least Restrictive Environment and physical education; 2) the use of the Social Cognitive Theory and the Occupational Socialization Theory to serve as the guiding lens through which to view the data; and 3) the justification of using mixed method approaches to answer this study's research questions.

Special Education Law & the Least Restrictive Environment

Before becoming what was named the Individuals with Disabilities Education Act in 1990 and what is now referred to as the Individuals with Disabilities Education Improvement Act ([IDEIA], 2004), PL 94-142—The Education for All Handicapped Children Act of 1975—mandated access to free and appropriate public education for all students. PL 94-142 guaranteed special education services, if needed, and defined these services as:

> specifically designed instruction, at no cost to the parent, to meet the unique needs of a handicapped child[1] including classroom instruction, instruction in physical education, home instruction and instruction in hospitals and institutions. (PL 94-142, Final Regulations, Subpart A, Sec. 121a.14)

Further, Jansma and Decker (1990) recounted a speech by former Assistant Secretary of the Office of Special Education and Rehabilitative Services Madeline Will. Of special education policy, Will (1984) claimed that LRE would become the cornerstone. While some of the terminology has since changed under current IDEIA (2004) law, the PL 94-142 LRE provision she was referring to captures the same directive. It states:

> (1) That to the maximum extent appropriate, handicapped children, including children in public or private institutions or other care facilities, are educated with children who are not handicapped, and
>
> (2) That special classes, separate schooling or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (PL 94-142, Subpart 1, Section 121a.550)

Consequentially, all special education services must be provided in a student's LRE. However, despite the passage of more than 40 years since the enactment of the special education legislation, LRE implementation regarding PE services still poses a challenge today—a notion that is generally accepted by APE scholars (Block, 2016; Columna et al., 2010; Lieberman et al., 2017). To better understand the current state of

[1] The preferred terminology is now "child with a disability"

LRE (i.e., the *hows?* and *whys?* of its implementation), however, a greater examination into the historical context that surrounds this special education law is required.

Historical Context of Least Restrictive Environment

In the early 1900s, prior to IDEIA and LRE, students struggled to receive anything with a resemblance to special education (Block, 2016). Students with more mild disabilities were placed into general education settings with no additional supports while those who posed learning and behavioral challenges too difficult to be accommodated were often excluded from public education altogether (Karagiannis, Stainback, & Stainback, 1996; Sigmon, 1983), much to the chagrin of the parents. The 1950s through the early 1970s saw a rise of special schools being developed—many by frustrated parents of students with disabilities—with the goal to provide more specialized and appropriate education that students were not receiving in public education at the time (Block, 2016). Fault with the widespread proliferation and need of such special schools became more prominent after the court ruling of *Brown v. Board of Education* (1954) established that "separate but equal" by its very nature was predisposed to actually be unequal. Thus, emboldened by the civil rights movement, special educators argued that using self-contained settings, especially without regard to whether a student would benefit from general education placement, tended to be unequal (Karagiannis et al., 1996; Taylor, 1988).

The concept of LRE began to emerge in the 1960s as special education teachers and parents advocated for a continuum of alternative placements in which students could learn (Taylor, 1988). A philosophical and moral perspective that public education must not be denied to students was the driving factor that propelled the beginnings of LRE,

rather than the existence of any data-based justification. This notion was developed into the first placement continuum by Reynolds (1962) to describe more restrictive environments (educated less with typically developing peers) to least restrictive settings (educated more with typically developing peers; see Figure 1). The top of the model represents more restrictive settings while the bottom represents less restrictive settings.

Ideally, students would move up the continuum only as far as necessary while trying to return to less restrictive environments as soon as possible. Over time the concept of alternative placement evolved as Deno (1970) offered a revised continuum (Figure 1). Still, the idea was to maximize the opportunities for students to be educated in regular settings (Jansma et al., 1990).

With the push for alternative placements for students, Jansma et al. (1990) concluded that it was a series of court decisions, most notably Mills v. Board of Education (1972) and the Pennsylvania Association for Retarded Children (PARC) v. the Commonwealth of Pennsylvania (1972) cases, which acted as the catalyst for Congressional support of PL 94-142. Indeed, these two court cases demonstrated that it was the duty of publicly supported education to provide instruction to students, rather than denying access to these students who were sometimes considered too burdensome to integrate into the regular school. Additionally, and thanks to the work of Reynolds (1962) and Deno (1970), the concept of LRE became foundational to the special education law (Will, 1984). In fact, Congress actually used Reynolds' continuum when developing LRE (Hocutt, Martin, & McKinney, 1991). As momentum behind LRE grew, those in the

Most Restrictive ←----------→ Least Restrictive	Adapted from Reynolds (1962)	Adapted from Deno (1970)	Adapted from Aufsesser (1981)	Adapted from Jarsma & Decker (1990)	Adapted from Lieberman et al. (2017)
	1. Most problems handled in regular classroom	1. Students in regular classes, who can learn with class accommodations with or without medical/counseling supportive therapy	1. Full-time regular PE	1. Full-time regular PE	1. Integrated PE with no support or modification
	2. Regular classroom with consultation	2. Regular class attendance plus supplementary instructional service	2. Regular PE with consultation from APE specialization	2. Part-time APE, flexible	2. Integrated PE with modification
	3. Regular classroom with consultation	3. Part-time special class	3. Part-time regular PE, part-time APE	3. Part-time APE, fixed	3. Modified PE
	4. Regular classroom plus resource room service	4. Full-time special class	4. APE with regular PE for specific activities where appropriate	4. Full-time APE, regular school	4. Integrated PE with consultation from an APE professional
	5. Part-time special class	5. Special Stations	5. Full-time APE in regular school	5. Full-time APE special school	5. Above option with additional self-contained instruction
	6. Full-time special class	6. Homebound	6. APE in Special School	6. Full-time APE, residential	6. Self-contained PE a set number of times per week/month combined with integrated PE Services
	7. Special day school	7. Instruction in hospital setting		7. Full-time APE, home	7. Reverse Mainstreaming
	8. Residential school	8. Non-educational service (medical and welfare care and supervision)		8. Full-time APE, hospital	8. Self-contained classes in school
	9. Hospital school				9. Self-contained classes out of school
	10. Hospital/ treatment centers				

Figure 1. Examples of how LRE placement continua have changed over time. Note: Continua from Reynolds (1962) and Deno (1970) originated in special education while the other three examples were designed for physical education.

special education and APE fields set on similar courses, with the latter lagging behind the former.

Comparison of LRE: Special Education v. Adapted Physical Education

Similarities. There is common ground between the approaches of the special education and PE/APE fields regarding the LRE continua of alternative placements (Block et al., 1992). This makes sense as much of PE/APE's perspective on LRE is borrowed directly from special education. The influence of Deno's (1970) work is apparent in the LRE continua of Aufsesser's (1981) and Jansma et al. (1990). Indeed, Jansma et al. (1990) even critiqued that PE LRE continua just seemed to add the word "physical education" to the existing special education models. Additionally, much of the PE/APE LRE literature cites special education literature to justify its stances. For example, Block et al. (1992), in their eventual criticism of the LRE continuum, justified the adoption of the continuum of support perspective by illustrating how many in the special education field were moving in that direction (continuum of support will be discussed more later).

Differences. Finding distinguishing characteristics between LRE application among special education and PE/APE fields is difficult due to so much shared perspective. The most notable discrepancy was temporal in nature. New philosophical perspectives on LRE implementation occurred earlier—sometimes much earlier—in special education. It would then take several years for the PE/APE profession to catch up. For example, Reynold's initial LRE continuum model was published in 1962, while the first PE LRE model was created in 1985 (see Dunn & Craft, 1985). Further, criticism of the LRE continuum principle was noted first in the special education community (around

1988-1989) whereas the sentiment arose in the PE/APE field in 1992 (see Block et al., 1992).

Controversy Surrounding LRE

Importantly, LRE was the offspring of special educators' desires to create more opportunities for students in regular education (via Reynolds, 1962 and Deno, 1970) and the subsequent court rulings (Mills v. Board of Education and PARC v. the Commonwealth of Pennsylvania). However, there is not much theory or empirical evidence to support the emergence of LRE beyond the justification of its appeal to humanity and social justice. In fact, issues began arising around its interpretation—what LRE is and is not—and what it should be.

While the intent of LRE and PL 94-142 in combatting a previous educational system that permitted students with disabilities to be denied access to public school was certainly a revolutionary step (Block et al., 1992), a growing number of special education professionals began to be critical of the LRE design in the late 1980s (e.g., Gent & Mulhauser, 1988; McDonnell & Hardman, 1989; Snell, 1988; Thousand & Villa, 1991). Broadhead (1986) went so far as to say that LRE research and discussion in APE would be one of the notable trends from the 1970s-1990s.

In special education, Taylor (1988) was especially against the notion of the LRE continuum. Chief among the complaints was that the LRE legitimized restrictive environments. That is, if a placement exists for a segregated setting such as a special school, then that must be an appropriate setting for some students. Further, Taylor (1988) fought against LRE models because they implied the students must "graduate" to a lesser restrictive environment, and questioned if such restrictive placements would prepare the

student for such a jump. Taylor (1988) also argued the inherent confusion that the LRE principle created about segregation and integration versus the intensity of services. For example, just because a student may have a severe disability and greater needs, it does not necessarily mean that those services must be provided in a highly restrictive placement (such as a special school). Offering those same services in a less restrictive environment, such as the regular classroom, may also be appropriate.

Up until this time, most APE professionals still supported the continuum of LRE options (Block et al., 1992). In fact, many APE professionals had created their own iterations of LRE placement models based on Deno's (1970) model (e.g., Aufsesser, 1981; Dunn & Craft, 1985; Jansma et al., 1990; see Figure 1). To demonstrate the ever-evolving nature of such continua, a recent interpretation (Lieberman et al., 2017) of the LRE continuum is also provided in Figure 1.

Jansma et al. (1990), however, did admit that the LRE continua for special education and PE tended to be inflexible, calling into question their utility in the development of special education and PE delivery systems. These issues eventually prompted Block and Krebs (1992) to be among the first APE professionals to voice criticism of the principle of LRE continua in PE—quite a controversial stance in the field at the time.

To better understand LRE implementation issues, Jansma and Decker conducted a large, nationally representative study entitled "Project LRE/PE" in the 1988-89 school year to gather the first meaningful empirical evidence (Jansma et al., 1990; Jansma & Decker, 1992). This project sought to address the issues of implementation of LRE in PE that have "proven difficult at best" (Jansma et al., 1990, p. i) through: 1) an investigation

of the number of placement options in the U.S., and the status of such alternative placements, and 2) APE entry/exit standards and factors that influenced the movement of a student from a more to less restrictive placement.

National survey data were collected from 470 schools (completed by the school's PE, APE, or special education teacher) using a stratified random sampling procedure to ensure that a wide range of U.S. public and special schools were included. In addressing the project's research aims, data were also collected from 48 state education agencies (SEAs). Surveys distributed to the schools and SEAs targeted data regarding the actual use and status of LRE placement alternatives (e.g., full-time regular class in regular school), the number of students who received A/PE services in the various placement options, APE entry/exit standards, and factors that affected LRE placement decisions. Further, APE faculty from 62 institutions of higher education in the U.S. were also surveyed to gather information about what LRE alternative placements *should* look like and how LRE placements decisions *should* be made.

Project LRE/PE: Type and Status of LRE Continua Usage

The results from the school buildings demonstrated the landscape of LRE continua usage during the 1988-89 school year. Out of 26 reported LRE continua, the highest documented placement option (50.7%) was full-time regular class in a regular school (what would now be termed "full inclusion"). A distant second (7.5%) was the LRE option of full-time regular class in a regular school combined with part-time adapted physical education, on a fixed schedule in a regular school. Third (6.0%) was a combination of full-time regular PE class and full-time APE in a regular school. Both part-time APE, fixed schedule in a regular school and a combination of full-time regular

PE, part-time APE, flexible schedule in a regular school, and part-time APE, fixed schedule, in a regular school were used by 5.8% of respondents. Finally, 5.3% of the placements that were used were classified as a combination of full-time regular PE and part-time APE, flexible schedule, in a regular school. Other used LRE placement variations and combinations (e.g., full-time APE in special school, residential school, home, or hospital) were also reported but each was less than 3.5% of total survey respondents. It should be noted that, while different school buildings used a variety of LRE placement continua, 85.8% of the continua used in the schools included full-time regular PE class in a regular school as an option.

Data from the SEA respondents (43 of the 48) demonstrated a discrepancy as state education personnel only reported 16 LRE continua were used in the state during the 1988-89 school year. SEA respondents indicated that the most widely used (23.3%) continuum was a combination of the eight placement options (minus full-time APE in homes), followed by all placements options (20.9%), minus full-time APE in homes and full-time APE in hospitals. Relatedly, 73.3% of responding APE faculty (60 of 62 responded) in higher education reported that all eight LRE placement options (see Jansma and Decker's continuum in Figure 1) should be used as a continuum. Interestingly, the data revealed a stark contrast between what the SEAs reported and the APE faculty supported—the use of all 8 placements as a continuum—and the frequency of use of the different placement options at the school building level. For example, the school buildings reported that the most common placement option (50.7%) was solely a full-time regular class in a regular school—which admittedly is not much of a continuum.

School buildings and SEAs also reported the incidence levels for the 1988-89 school year. Not surprisingly, schools (n = 381) reported that most students were educated in full-time regular PE settings (13.09 students per building). The placements of full-time APE in a regular school (2.35 students per building) and part-time APE in a regular school with a fixed schedule (1.54 students per building) were second and third most common, respectively. Interestingly, no single school had students placed in all of the LRE options. At the state level, only 11 SEAs reported the average number of students receiving APE (mean = 4708.55) or 6.53% of all students, while 26 SEAs indicated that they did not typically collect data on how many students received APE. Further, while 85.8% of school buildings reported that they used full-time regular PE in a regular school as a placement option, only 51.7% of those schools actually had students placed in that setting for the 1988-89 year.

Project LRE/PE: APE Entry/Exit standards and LRE Placement Factors

Regarding APE entry/exit standards, only 28.5% of responding school buildings (n = 410) had established specific procedures for students' entry into and/or exit from APE services. This lack of standard is likely contributed to by the SEAs (n = 48), that reported only 22.9% of such agencies established state-level APE entry/exit standards. It should be noted that, since PL 94-142 did not mandate specific standards for entry into or exit out of special services, SEAs and their school districts were at liberty to individually address such decisions (Jansma et al., 1990). Lack of school- and state-level strategies regarding APE entry/exit plans for students ran contrary to the beliefs of those in higher education, where 77.4% of responding APE faculty (n = 62) recommended that standards be used.

Many factors (n = 37) that influenced these LRE placement decisions emerged during Jansma et al.'s (1990, 1992) reports of the Project LRE/PE school-level data. The authors organized the factors into five major themes: test scores, staff recommendations, student-related factors, class-related factors, and administrative factors. Individually, the highest-rated factors were disability severity, safety considerations, reaching individualized program objectives, and special education teacher's recommendation. The 37 factors were sent to the APE faculty in higher education for them to rate the degree to which each factor *should be* prioritized when making decisions about students' LRE placement. APE faculty data revealed that the recommendation of APE teachers was the first ranked factor, followed by safety considerations, availability of qualified APE personnel, reaching IEP instructional objectives, and developmental motor test scores, which ranked second, third, fourth, and fifth, respectively. Perhaps unsurprisingly, a stark contrast was revealed between the school-level data and that of the APE faculty experts. The most influential factors reported by the teachers at the school level relied on the nature of the disability and the expertise of special educators, whereas the APE experts advocated for reliance on trained APE teachers regarding PE/LRE related decisions.

Project LRE/PE Aftermath

While Jansma et al.'s (1990, 1992) influential work provided a much-needed understanding to LRE practices in the late 1980s, the factors that this study captured were heavily based on environmental influences surrounding the PE/APE/special education teacher (e.g. administrative/support staff factors, etc.). Personal factors, such as knowledge of special education law, motivation, and self-efficacy and how they influence

the behavior (i.e., implementation of LRE) are also important according to the social cognitive theory (SCT) (Bandura, 1986). The instrumentation in Jansma et al.'s (1990, 1992) study does not explicitly measure knowledge of special education law, examine motivation, or look at self-efficacy. Application of theory such as Bandura's SCT, would have provided a useful theoretical framework to strengthen this type of LRE research.

Further, this project focused quite heavily on quantitative research methods, so it did not yield the same level of depth that a mixed methods approach can. A mixed methods design would contextualize the data, which would help derive a deeper level of understanding of the results (Gelo et al., 2008). This would help explain the nuanced variations in PE/APE teachers' experiences with LRE implementation based on their unique environments (e.g., school culture, administrative support, etc.) through the collection of thick narrative descriptions of teachers' accounts (Mills, Durepos, & Wiebe, 2010).

Regardless, Decker and Jansma (1992) soon implored the APE field to develop PE LRE placement options that would meet the needs of students, reiterating that the usage of rigid continua may result in poor delivery of PE services. Instead, the authors suggested, a flexible schema approach used in each school district would increase the likelihood of appropriate LRE implementation. A few years later, however, Decker and Jansma (1995) reported that 26 different PE LRE continua were used among 452 U.S. schools and that in most of the cases, students received PE in a regular class setting with either little or no access to APE. These results were supported by earlier literature that implementation of PE LRE continua was failing to adequately meet the needs of students (DePaepe, 1984; Loovis, 1986). Crucially, Decker (1993) offered a nuanced clarification,

that “failures of least restrictive environment placement are failures of implementation rather than conception” (p. 1). Decker’s stance was not well received by everyone in the APE field.

As a highlight of the professional dissonance, take for example, the public disagreement between Butterfield (1991, 1993) and Decker (1993). Butterfield (1991) published a paper in which he was critical of the LRE placement in regular PE for deaf students. Butterfield maintained that such a placement was inappropriate due to the lack of cultural foundations important and unique to the deaf community and supportive services that are vital to deaf students in PE.

A few years later Decker (1993) and Butterfield (1993) published their responses to one another regarding Butterfield’s 1991 paper. Decker kept his response short as he defended the LRE placement in regular settings for deaf students (he referred to them as students “with hearing impairments”). Further, Decker recommended that Butterfield not conflate the issues of LRE implementation with the principle (or intent) of LRE.

In Butterfield’s (1993) published response, he suggested that he and Decker had fundamentally different perspectives on the deaf community. Butterfield continued:

> Perhaps Dr. Decker believes that placing deaf children in regular classrooms, with close physical proximity to their hearing peers, will somehow cure their deafness. Such an attitude is not new. In fact, similar positions were held long ago by religious zealots who worked with great energy to deny deaf people their language and culture. In advocating public school placement for deaf children, though, Decker has overplayed his hand. Although he acknowledges that

> supportive services for deaf children are frequently inadequate, his response incredibly is to blame the victims...” (p. 8)

While Butterfield scoffed at the idea of LRE regarding the inclusion of deaf students, criticism continued from individuals such as Block and Krebs (1992) and Taylor (1988), who argued that LRE continua were not inclusive enough of students since the range of placements included multiple opportunities for instruction in segregated settings (e.g., self-contained small groups, self-contained one-on-one, special schools). For example, under the LRE continua, it could be decided that a student’s most appropriate placement is in a more restrictive setting, such as a self-contained APE class (i.e., educated only with other students with disabilities). Ultimately, this marked the beginning of a circuitous movement towards the philosophy of inclusion.

From LRE To Inclusion (& Stops In-Between)

The Confusion Between LRE and Mainstreaming. While the passage of PL 94-142 was monumental and should not be undervalued, the LRE mandate caused confusion about how it should be implemented (Jansma et al., 1990). Mainstreaming, a practice of including students with disabilities with typically developing students in regular education settings (Dunn & Craft, 1985), was often misinterpreted as the intent of LRE. In PL 94-142, there was no mention of such a practice as mainstreaming. In fact, this misinterpretation prompted Lavay and DePaepe (1987) to describe the regular PE class as a “dumping ground” for students while Jansma et al. (1990) coined the term “counterfeit mainstreaming”. These terms were used to describe how students were pushed (or “dumped”) into a regular PE setting without appropriate supports in place, making for inappropriate—or counterfeit—mainstreaming practice.

Further, it has been suggested that school administrators purposefully manipulated the meaning of mainstreaming to meet the school's needs, when the focus should be providing an appropriate LRE continuum of placements based on the students' needs (Arnold & Dodge, 1994; Broadhead, 1985). Legally, the intent of LRE is for students to be placed in a setting where they can learn satisfactorily with their non-disabled peers to the greatest extent possible—not just arbitrary placement in regular education. This confusion, at least in part, undermined the implementation of LRE. As detailed earlier, many special educators had already become disillusioned with the principle of LRE by this time (e.g., Gent et al., 1988; McDonnell et al., 1989; Snell, 1988; Thousand et al., 1991).

While counterfeit mainstreaming was generally accepted as an inappropriate practice (Grosse, 1991; Jansma et al., 1990; Lavay et al., 1987), early evidence emerged showing some promise in mainstreamed settings in PE (Karper & Martinek, 1985; Rarick & Beuter, 1985; Vogler, van der Mars, Darst, & Cusimano, 1990). This research began to demonstrate that students integrated into mainstreamed PE classes could generally increase motor performance (Karper et al., 1985; Rarick et al., 1985) and enhance their self-concept (Karper et al., 1985). While not a resounding endorsement of mainstreaming, Vogler and colleagues (1990) added that, although the students' lack of engagement in motor activity during class was high (67.2% of class time), the practice of mainstreaming was likely not the cause. Such evidence—however preliminary—bolstered Block and Krebs' (1992) argument that the PE field should pivot from the principle of LRE and toward a continuum of support, especially since by that point, a

majority of students with disabilities were receiving free education and thus "the emphasis [had] shifted to the appropriateness of education" (p. 103).

Continuum of Support. Originating in special education, a continuum of support relies on the notion that, given appropriate support and services, all students are able to receive appropriate, safe, and successful education within a regular classroom (Snell et al., 1989; Stainback & Stainback, 1990). Proponents of a continuum of support stress the importance of how much and what kind of assistance is needed for a students to participate in regular education settings. Take, for example, a child who is born with a moderate visual impairment, providing her with a paraeducator ("what kind") during every PE class ("how much") may allow her to have a successful learning experience in regular PE. Ultimately, Decker et al. (1995) succinctly summarized the utility of a continuum of support (emphasis added):

> …the issue switches focus from the development of placement alternatives to the identification and provision of supportive services *to meet the unique needs of each student with a disability within the regular setting*. (p. 126)

Decker et al.'s (1995) sentiment notably adds to the momentum away from the LRE federal mandate towards a more mainstreamed-oriented system with a continuum of supports.

Moving Toward Inclusion. The concept of inclusion emerged in the fold as a function of previous experiences with mainstreaming—influenced alike by "dumping ground" failures and the positive-leaning research described earlier—and the push for a continuum of supports in the late 1980s. The catalyst, much like it was during the conception of LRE, was the continued desire to educate students in less restrictive

placements and ultimately, their integration into regular education settings. Perhaps the idea of LRE had done its work in permitting access to public education to a clear majority, if not all, of students and now it was again time to evolve as Block and Krebs (1992) suggested.

The next logical step for many special educators—but not all (e.g., Braaten, Kauffman, Braaten, Polsgrove, & Nelson, 1988; Fuchs & Fuchs, 1991; Vergason & Anderegg, 1992)—was full inclusion (e.g., Hardman, Drew, Egan, & Wolf, 1993; Lipsky & Gartner, 1991; Stainback & Stainback, 1992). Not surprisingly, the philosophy of inclusion was considered a movement to include students fully into public education—a movement that was not based on empirical evidence but rather on emotions because it was "the right thing to do" (Yell, 1995). Still, issues of the LRE mandate plagued the movement towards inclusion to the extent that Lloyd, Singh, and Repp (1991) felt compelled to ask the following challenging, but fundamental, questions:

1. What is the least restrictive environment?
2. Should regular classrooms be considered the least restrictive environment and, therefore the recommended placement for all pupils?
3. Under what conditions is it appropriate to use specialized settings away from regular classrooms?
4. Is provision of educational services outside of the regular classroom a violation of a fundamental right? (p. 11)

Instead, Block (1994) reframed the special education legislation by asking, "under what circumstances can we justify removing a student from regular physical education?" (p. 22). Inclusion advocates believe that all students can and should be included provided

that they had appropriate continuum of supports and individualized programs in place (Block, 1994; Block, 1996; Block et al., 1992; Snell et al., 1989; Stainback et al., 1990). Sherrill (1994) challenged Block's (1994) inclusionist perspective by questioning the implications of the "radical" departure from LRE—federal law—that was tethered to the emerging inclusion movement. Sherrill cautioned about asserting that only one educational placement was correct, rending all other options as "reprehensible".

The transition to inclusion from the principle of LRE was not without its issues, as Block (1999ab) noted in two editorials. He pondered whether inclusionists jumped on the inclusion bandwagon prematurely—whether the movement was in the best interests of the students. Block used the articles (1999ab) to reexamine and reflect on what inclusion was and what steps were necessary to get the bandwagon back on track. DePauw and Doll-Tepper (2000) disagreed with the notion of the inclusion bandwagon, arguing instead that inclusion should be considered a "philosophical approach to implementing social justice in our schools and our society so that all persons are valued as unique contributing members of society and included" (p. 139). DePauw et al. (2000) noted their concern that discussions on LRE theory (Sherrill, 1994) often did not address general (regular) PE as a setting considered for change since there was a continuum of alternative placements. The authors reasoned that the regular education setting must be discussed and changed in order for true inclusion to be successful in the schools (DePauw et al., 2000).

However, that there are problems with appropriate placement of students in their LRE, whether fully included or otherwise, remains the professional opinion in PE and APE (Block, 2016; Columna, et al., 2010; Lieberman et al., 2017). Yet, there is little

empirical evidence since Project LRE/PE to describe LRE's current status in public education.

The Present and Future of LRE

According to the U.S. Department of Education (2017), about 63% of students spent 80% of their time or more in general (i.e., regular) classrooms, 19% spent 40-79% of their time in general classrooms, and 14% spent less than 40% in this setting. To be fair, these statistics are *much* better than in 1990, when the movement towards inclusion started to gain steam. Specifically, rates of students receiving education in general settings most of the time (80% and above) jumped nearly 30% between 1990 and 2014-2015 (U.S. Department of Education, 2017).

However, it is not clear whether these trends mark the appropriate placement of students in the LRE, but rather simply indicate in which setting the students are being placed. Further, including students in general PE solely for social reasons—and the desire to "do the right thing"—is inappropriate. In special education law, PE is defined on the basis of motor skill development with no mention of the social aspects. Sometimes more restrictive environments (e.g., a self-contained or segregated settings) may be the appropriate placement option if it allows students to achieve their motor skill objectives. Of course, as many APE professionals would argue, numerous students in more restrictive settings are also inappropriately placed. Such is the nature of a continuum of alternative placements.

Ultimately, the IDEIA (and LRE) is the law of the land, so inclusion philosophy notwithstanding, educators and teacher trainers must strive to abide by the law. It is easy to say that PE and APE teachers must appropriately place students in their individual

LRE—to meet their "unique needs" and not the needs of the school—but hard to do. To this end, a good first step to building off of Jansma et al.'s (1990) work is to apply theoretical perspectives to how teachers understand and implement LRE.

Theoretical Background

Social Cognitive Theory. The social cognitive theory (SCT) describes its model of causation as a function of a dynamic and multi-directional interaction between an individual, the environment, and behavior—an interaction that Bandura (2001) termed triadic reciprocal determinism (see Figure 2). Personal (or individual) factors could include knowledge, motivation and self-efficacy. For example, it is reasonable to consider that a PE or APE teacher's knowledge of special education legislation would impact their implementation of LRE in their own teaching situations. Similarly, those same teachers may encounter issues in the environment such as lack of school or administrative support due to marginalization (Laureano et al., 2014; Lieberman & Houston-Wilson, 2011; Lux & McCullick, 2011). So, in this scenario, there may be a PE teacher with little knowledge of LRE in a school setting that does not tangibly support the PE services of students with disabilities. These personal and environment factors will most likely influence that teacher's implementation (his/her behavior) of LRE negatively (i.e., inappropriately). Thus, use of such a theoretical framework can provide insight on the personal and environmental variables that may influence PE teachers' implementation of inclusion (An & Meaney, 2015) and the LRE.

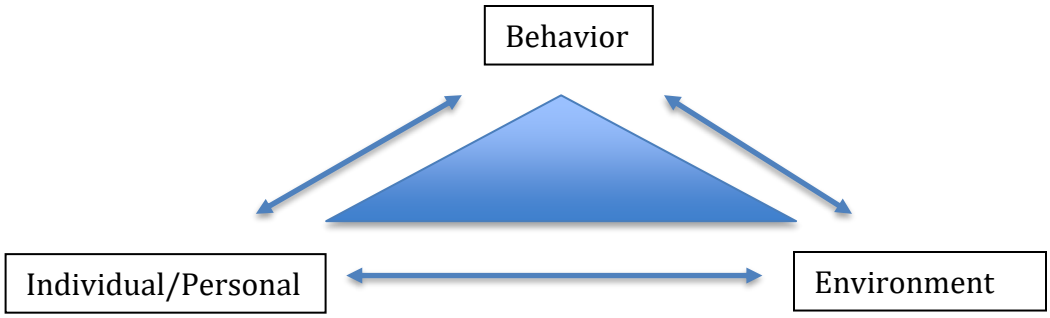

Figure 2. Triadic reciprocal determinism. Adapted from Schunk (2012)

Within the triadic reciprocal determinism model, there are several important concepts that emerged in the literature that are relevant to the present study. This is by no means an exhaustive list, but rather a targeted examination of terms that have appeared in APE-SCT literature.

Self-efficacy. While motivation, knowledge, and expected outcomes are all important personal factors, self-efficacy is at the center of SCT (Block, Taliaferro, Harris, & Krause, 2010). Self-efficacy, or context-bound self-confidence, is described by Bandura (1997) as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). For example, it may be expected that a PE teacher with little APE training and no experience working with students with disabilities will exhibit lower levels of self-efficacy regarding the appropriate implementation of the LRE. On the other hand, a certified APE teacher would more likely have higher levels of self-efficacy regarding LRE implementation due, at least in part, to more APE-specific training.

To this end, Bandura (1997) posits that there are four information sources that influence self-efficacy: mastery experiences, vicarious experiences, social persuasion, and physiological state. Mastery experiences, the most influential source, refer to one's

perception of previous experience with executing a specific task. For example, if a PE teacher has successful interactions regarding placement decisions with the members of a child's individualized education program (IEP) committee, then that mastery experience will likely increase that teacher's self-efficacy for similar experience going forward. Alternatively, a negative interpretation of a previous authentic experience will be a powerful force to weaken that same teacher's self-efficacy (Bandura, 1997). The PE teacher may not receive tangible support from the special education teacher, who will not allow one of the paraeducators to attend general PE with the students, and therefore making the general PE a challenging placement option for the particular student. In this instance, we would expect that the self-efficacy of placing students in the appropriate placement to diminish and with that, the behavior of implementing appropriate placement practices in the future. This scenario demonstrates how the environment, specifically the lack of support from the special education teacher, influences self-efficacy (personal factor) which then negatively contributes to the behavior of the PE teacher.

Vicarious experience refers to one's estimation of abilities in relationship to another. So, for example, a PE teacher may witness the APE specialist successfully including a student in her general PE class. Seeing that success is possible may convince the PE teacher that she can overcome the same challenge when the APE specialist is not present.

Social persuasion (also called verbal persuasion) from others has the ability to increase one's self-efficacy, provided that it is grounded in reality (Bandura, 1997). For example, a school administrator may drop by the gym and encourage a PE teacher that she can easily manage having an extra student with a disability in her 3rd period class

because she is a great teacher. This may serve in increasing the PE teacher's self-efficacy in this scenario. However, Bandura (1986) concedes that social persuasion may more easily be a detriment to self-efficacy than a benefit. In the earlier scenario, the administrator's encouragement may not have been persuasive to the teacher if she knew that she did not have the appropriate supports in place to successfully include the student (i.e., persuasion was not grounded in reality). Further, if that same administrator instead had a bad attitude towards including the child in PE, this would have also created a climate in which increasing the teacher's self-efficacy would be challenging.

Finally, one's physiological states (e.g., stress, anxiety) may influence one's self-efficacy. Strong emotions like fear and apprehension could prompt the teacher to expect failure, such as anticipating negative behaviors from a child with autism spectrum disorder during PE. The teacher may understand these emotions as an indictment of her abilities to manage any misbehavior, thus negatively informing her self-efficacy beliefs. However, heightening perceived self-efficacy tfhrough the elimination of this negative emotional arousal is theorized to improve performance (Bandura, 1986). For example, to increase the likelihood that the teacher will feel successful in this situation, she may try to decrease her anxiety by researching evidence-based practices for managing behaviors of students with autism so that she feels more prepared for subsequent classes.

Three Structures of Environment. Bandura (1999, 2001) expanded the environment construct into three structures: imposed, selected and constructed. Imposed environments are situations that include "the ways things are, that is situations an individual must interact with on a daily basis" (Meaney, Housman, Cavazos, & Wilcox, 2012, p. 110). This can include family, school, and work. For example, an imposed

environment might be described through the earlier teaching situation with the special education teacher who was not able to provide a paraeducator for a student during PE class. In this setting the special education teacher simply cannot spare her staff during PE period and the school does not have the funding to hire more support. The PE teacher has very minimal control over this imposed environment and must deal with it. Now, that PE teacher has a choice in how she interprets and reacts to these imposed factors—what Bandura (1999, 2001) termed the selected environment. Ultimately, the resulting behaviors of the PE teacher will become the constructed environment. One's construction of the environment necessitates the individual actively engaging in her surroundings and "often results in the acquisition of new knowledge, beliefs, and behaviors" (Meaney et al., 2012, p. 110). To this end, one's interpretation and perception of the world around them, and the selection and the construction of environments influence the reciprocal nature of triadic causation among the personal, behavioral, and environmental factors (Bandura, 1999).

SCT Research in APE. While SCT research has explored physical activity, less research has been devoted to adapted physical activity and PE for individuals with disabilities (Martin, Shapiro, & Prokesova, 2013). However, such recent research has still provided merit to using SCT in this field. Social support from parents, classmates, friends, siblings, and self-efficacy (all derived from SCT), have shown to be among the best predictors of physical activity in children with hearing impairments (Martin et al., 2013). Further, SCT was useful as a predictive model for the level of sport participation in parasport competitions (Stapleton, Perrier, Campbell, Tawse, & Martin-Ginis, 2016). They found that self-regulatory efficacy significantly predicted outcome expectations and

self-regulation of athletes with physical disabilities—or stated otherwise, the athletes with greater confidence in setting goals and overcoming barriers, expected more positive outcomes in sport participation. Additionally, there is evidence that targeting self-efficacy and goal setting for individuals with multiple sclerosis are viable options in changing physical activity patterns (Suh, Weikert, Dlugonski, Balantrapu, & Motl, 2011). Narrowing the focus to SCT's application to the field of APE, three research studies emerged and were detailed below.

Haegele and Porretta (2017) conducted a single-case, multiple baseline study with four participants with visual impairments to determine if a physical education intervention would increase the level of physical activity (via step count). The intervention consisted of nine instructional lessons that integrated one or more SCT constructs. For example, the lessons focused on themes such as completing exercise logs and goal setting (self-regulation), reasons not to exercise and exercise intensity (self-efficacy), and friends and family (social support). Fitbit Zips were used to measure afterschool leisure physical activity behavior of the participants. Results revealed that the SCT-based intervention demonstrated no functional relation to participant physical activity, as overlap between the baseline and intervention data evidenced a lack of upward trend during the intervention. Issues with cold weather were cited as a potential confounding factor in the results. However, it is likely that the lack of functional relation between the intervention and physical activity level was influenced by the researchers deciding to implement the intervention to a second class of participants after not detecting an intervention effect in the first class. This violated a fundamental rule of the multiple baseline design as researchers typically wait until the first class of participants

reach a stable state of responding to the treatment condition. This undermined the detection of an intervention effect and was the primary weakness of the study.

Umhoefer, Vargas, and Beyer (2015) examined three APE service delivery approaches (consultation, itinerant, and collaborative) and their influence on 102 elementary general PE teachers' self-efficacy to work with students with disabilities (all participants had at least two years of experience). Consultation approach refers to APE services being provided based on consultation from an APE specialist (e.g., APE specialist gives suggestion to the PE teacher about appropriate modifications for a student). An itinerant approach involves APE services being delivered by an APE specialist who spends time at multiple different schools/districts. A collaborative approach refers to APE service that is provided through close communication between the PE teacher and the APE specialist, who is heavily involved in all aspects of teaching a student with a disability and only teaches at the one school. The researchers created their own quantitative survey instrument to measure teacher self-efficacy through recommendations in the *Adapted Physical Education Manual of Best Practices* (Silliman-French & Buswell, 2008) and the *Adapted Physical Education National Standards* (Kelly, 2006). The SCT was then used as a guide to make sense of the results. Not surprisingly, PE teachers with no APE support in their district were found to have the lowest levels of efficacy to teach students with disabilities while higher scores were reflected as APE support increased among the different delivery approaches. Ultimately, the highest level of teacher efficacy was seen in the collaborative approach, which provided the most direct support from APE specialist in teaching, lesson planning, and modifications. The issue with this study was that there was no indication that the

researchers controlled for important demographic information such as the education and training of the PE teachers or the APE specialists with whom they interacted, which was a threat to internal validity. Further, the researchers did not control for the differences that may exist among how APE services are delivered from school to school and district to district. For example, what is considered an APE consultation delivery approach in one school may be greatly different from that in another. This poses a threat to external validity and thus its generalizability.

An and Meaney (2015) conducted a qualitative study examining the inclusion practices of elementary PE teachers. The researchers utilized a phenomenological approach to analyze the common experiences of the participants regarding their implementation of inclusion of students in PE class. Per standard practice in qualitative research, semi-structured interviews were used as a data source. Interestingly, the researchers also analyzed school documents, photographs, and field notes. Having multiple data sources establishes trustworthiness of the data through data triangulation (Lincoln & Guba, 1985), which was a strength of this study. Thematic analysis of data from four elementary PE teachers—an admittedly low sample size for even qualitative research—revealed the following themes: engaging in learning (knowing about the students, collaborating with support staff), adapting strategies to meet students' needs (modifications, individualized instruction on the sidelines, incorporating IEP goals into lesson), and moving beyond the educational goals (the importance of being part of the IEP team). The authors used the SCT to help interpret the results effectively. The important personal factor that influenced the implementation of inclusion (i.e, the behavior) was the knowledge about the students —their strengths, weaknesses, IEP goals.

Further, through interactions with parents, APE specialist, and other support staff, the IEP meetings represented the important environmental factor which influenced the PE teachers' knowledge of the student (personal) and the inclusion of students during PE (behavior).

While the few SCT-related studies that specifically examined APE (An et al., 2015; Haegele et al., 2017; Umhoefer et al., 2015) showed mixed results and some methodology weaknesses, the application of SCT to the larger body of research in adapted physical activity demonstrates the utility of SCT when applied to a rigorous study design. Thus, consideration of using this theory as a basis for further research in APE is warranted.

Occupational Socialization Theory. Before its use within the PE research, OST was more broadly defined regarding the teaching profession as the "field of scholarship which seeks to understand the process whereby the individual becomes a participating member of the society of teachers" (Zeichner & Gore, 1990, p. 329). Over the last 40 years, however, the investigation of the recruitment, training, and ongoing socialization of PE teachers through the lens of OST has emerged (Richards, Templin, & Graber, 2014; Templin & Richards, 2014). This line of research has explored why individuals pursue careers in PE, the effectiveness of physical education teacher education (PETE) programming (Curtner-Smith & Sofo, 2004; McMahon & MacPhail, 2007), the use of model-based practice (Curtner-Smith, Hastie, & Kinchin, 2008; Zmudy, Curtner-Smith, & Steffen, 2009), and teacher/coach role conflict (Richards, Levesque-Bristol, & Templin, 2014; Ryan, 2008). More recently, the OST framework has also been applied to better understand the socialization of inservice PE teachers working with students with

emotional behavioral difficulties (O'Leary et al., 2015), preservice APE teachers throughout their graduate course-related practicum (Sato et al., 2016), and inservice APE teachers (Park & Curtner-Smith, 2018). Indeed, the use of OST in APE-specific research is in it infancy, prompting a call for more research of this kind by Wilson, Richards, and Kelly (2017).

Characteristics of OST & Research. OST allows for a better understanding of "all the kinds of socialization that initially influence persons to enter the field of physical education and that later are responsible for their perceptions and actions as…teachers" (Lawson, 1986, p. 107). The OST perspective is dialectical because it accounts for individuals' ability to resist the forces of socializing agents with whom they interact, in contrast to the structural-functionalist perspectives of socialization, which posit that individuals are passively socialized into the roles they play (Schempp & Graber, 1992). While acknowledging that socialization was not a linear process, the OST has traditionally used a three-phase model to describe socialization into the PE profession, which includes acculturation, professional socialization, and organizational socialization.

***Acculturation*.** Acculturation, or anticipatory socialization, accounts for socializing experiences encountered by potential PE recruits prior to the initiation of formal teacher education (Lawson, 1983b). During their own K-12 education, recruits participate in an apprenticeship of observation (Lortie, 1975) during which they spend upwards of 13,000 hours interacting with teachers, coaches, guidance counselors, parents, and other socializing agents (Richards, Templin, et al., 2014). These interactions shape prospective recruits' perceptions of what it means to be a physical educator and lead to the development of subjective theories about the purposes of PE (Betourne & Richards,

2015). Grotjahn (1991) defined subjective theories as "complex cognitive structures that are highly individual, relatively stable, and relatively enduring, and that fulfill the task of explaining and predicting such human phenomenon as action, reaction, thinking, emotion, and perception" (p. 188). Recruits' initial subjective theories are, however, often incomplete because as students in PE classes they do not have complete insight into the technical culture of teaching and the sociopolitical realities of life in schools (Richards, Templin, & Gaudreault, 2013). Subjective theories may also reinforce traditional practices as many current teachers continue to use a multiactivity approach only focused on team sports, while others embody a non-teaching approach to PE (Curtner-Smith, 2009; Woods, Richards, & Ayers, 2016).

As acculturation pertains to teachers that provide APE services to students, a review of literature suggested that future APE recruits may not develop as rich a vision for what it means to be an APE teacher since many were not directly exposed to APE as children, and others may not even have been aware that APE classes and teachers actually existed (Pugach, 1992). Because of this, Lortie's (1975) apprenticeship of observation may not be as powerful of a socializer in contrast to PE recruits (Park et al., 2018; Pugach, 1992; Wilson et al., 2017).

To date, there are only two studies that examine acculturation socialization of PE teachers who work with students with disabilities or APE teachers. O'Leary and colleagues (2015) examined the socialization processes of all three phases of OST on one PE department head responsible for teaching at a special school for students with social and emotional behavioral difficulties. Semi-structured interviews and field observations were used to capture the participant's socializing experiences growing up (acculturation),

going through formal training (professional socialization), and throughout her teaching career (organizational socialization). Pertinent to acculturation, results suggested that, in contrast to Pugach (1992) and Wilson et al.'s (2017) assertions, the participant did indeed experience powerful apprenticeship of observation, which aligned with PE socialization research. She maintained her innovative teaching ways from acculturation and only accepted socialization from professional and organizational sources if they aligned with her acculturation experiences (i.e., to some degree, she resisted higher education's and her workplace's efforts to mold her). However, O'Leary and colleagues note that the participant did not have formal APE teacher training, which may account for the strength of acculturation socialization to be more resistive to her experiences in professional and organizational socialization.

Having two sources of data increased this study's credibility, as did the use of member checking, peer debriefing, and audit trail (Lincoln et al., 1985). However, the major weakness of this study is that it only describes the socialization experiences of one individual teaching PE in a special school. Ultimately, the authors may have gone too far in their discussion of the significance of their findings—more research must be done before significant implications for those training preservice teachers to work with students with disabilities can be made. Further, this research was conducted in the UK, which exists in a different educational climate than the US, so any further generalizability should be greatly cautioned.

The other study (Park et al., 2018) examined the occupational socialization of nine APE teachers (from a variety of states/regions, education level, and ages), exploring their experiences during acculturation, professional socialization, and organizational

socialization (results from professional and organizational socialization are discussed in their respective sections below). Pertaining to acculturation, the participants had shared experiences of enjoyment and success with physical activity and sports while growing up. This, in part, facilitated their recruitment into formal teacher training. Further, interactions with individuals with disabilities during their formative years was found to be powerful influencer leading the APE teachers into ultimately enrolling in formal APE teacher training.

Park and Curtner-Smith's (2018) study was methodologically sound as they utilized data triangulation from a variety of sources. The authors used semi-structured interviews, field observations (filmed or in person), informal interviews, and artifacts (such as lesson plans and other documents that illustrated the APE teachers' current practices). This study began to fill an important gap in research related the socialization of APE teachers; however, as the authors noted, additional research employing a variety of research designs (such as mixed methods) with larger sample sizes are needed to test emergent hypotheses generated from their study.

***Professional socialization*.** This phase begins when recruits formalize their decision to enter the teaching profession by enrolling in a PETE program (Lawson, 1983b). Broadly defined, the purpose of PETE is to equip preservice teachers with the knowledge, skills, and dispositions needed to teach effective PE. However, the socialization experienced by PE teachers has been characterized as problematic or inconsistent because practices promoted in PETE programs often do not align with the subjective theories recruits develop during acculturation (Lawson, 1986; O'Leary et al., 2015). When there are discrepancies, preservice teachers may exercise their sense of

agency through the dialectical nature of socialization by resisting the messages relayed by teacher educators. Graber (1991) noted that when resistance occurs, it is more often covert than overt as teacher educators serve as gatekeepers, and thus hold an imbalance of power in the dialectical exchange. They explain that PETE should serve to help students question and challenge their own preconceived notions about PE with the goal of helping them to redefine their subjective theories. In developing their subjective theories for APE, APE teacher training, specialized coursework and practicum experiences are necessary for enhancing preservice APE teachers' perceptions toward and ability to teach students during this phase of socialization (Block & Obrusnikova, 2007).

To date, there are three studies that have examined professional socialization of those who teach APE. One study, from O'Leary et al. (2015), was discussed in the previous section. In the second, Park et al. (2018) found that high quality APE teacher education (APETE) served as a powerful influencer on how the nine APE teachers viewed teaching APE. Again, since APE teachers do not experience as powerful apprenticeship of observation because they are not as likely to be exposed to APE growing up (Wilson et al., 2017), Park et al.'s (2018) conclusion that APE teachers are more receptive to the values that APETE faculty try to instill, makes sense. Otherwise put, APE teachers enter training with less preconceived notions of what APE should be, so they have an easier time adopting their APETE programs' values.

In the third study, Sato and Haegele (2016) used OST as a framework to understand how preservice APE teachers are socialized through their graduate course-related practicum experiences. The researchers used semi-structured interviews and demographic questionnaires of nine graduate-level preservice teachers to examine the

salient experiences from their APE field experiences. Results indicated that ambiguity in the APE teacher's role stemmed from issues of blurred lines between the responsibilities of the preservice APE teacher, the cooperating teacher, and special education teachers. Specialized expertise emerged as a necessity for a successful experience in the field. Participants who found expertise through their cooperating teachers or other resources cited feeling more successful despite encountering challenging behaviors from students with disabilities. Finally, participants experienced reality shock when they encountered extreme and unpredictable behaviors from students with whom they were working. Importantly, trustworthiness was established through data triangulation, member checking, and peer-debriefing. However, other data sources such as researcher field observations and reflective journaling from the participants would have added a richer understanding of the socialization experiences of the participants.

Organizational socialization. This phase begins when recruits make the transition into their first teaching position and is ongoing throughout the remainder of the careers as PE teachers (Lawson, 1983a). It occurs on the job and refers to the process through which individuals learn the knowledge and value system promoted by key stakeholders within a particular school context (Richards, 2015). Throughout PE teachers' careers, their subjective theories are shaped and reshaped through interactions with students, colleagues, administrators, and parents, as well as more higher-order structures such as government policies that influence education (Woods & Lynn, 2014). As a social institution, the school tends to perpetuate the status quo through the institutional press, which is the mechanism by which one generation of teachers passes its culture along to the next through primarily informal channels (Curtner-Smith et al., 2008). Teachers with

subjective theories that emphasize custodial teaching practices are likely to blend into conservative school cultures, which causes the washing out of lessons learned during PETE (Blankenship & Coleman, 2009). Through the support of colleagues and administrators, however, individuals with more innovative orientations to PE have a better chance of applying pedagogies learned during professional socialization (Curtner-Smith et al., 2008). To date, there are two studies using OST to describe the organizational socialization of PE or APE teachers who teach students with disabilities: 1) O'Leary et al. (2015)—which was reviewed earlier, and 2) Park et al. (2018).

Park and Curtner-Smith (2018) found that all nine APE teachers in their study possessed teaching orientations (i.e., more student-centered approaches), which contrasts with the coaching orientation that has been found in many PE teachers (Curtner-Smith, 2009). Further, school culture towards APE—from administrators, other teachers, paraeducators, and regular PE teachers—was found to play an integral role in the APE teachers' working environment. Not surprisingly, the more "outside" support that APE teachers felt, the better the reported working conditions were; however, when that support was missing, APE teachers felt marginalized and frustrated (Park et al., 2018).

Summary of the Research Literature. Jansma and Decker's (1990) original project showed how the status and types of LRE continua were being implemented in US schools and highlighted that integrated settings were largely used as part of such continua. Further, they identified a number of factors that were considered before moving students to less restrictive settings, which were organized into five categories: test scores, staff recommendations, student-related factors, class-related factors, and administrative factors. Yet, there has been little meaningful research conducted on issues regarding LRE

implementation recently, as much of the research emphasis has shifted its focus to inclusion-related scholarship. To this end, while current empirical evidence has been lacking, consensus and opinion about LRE problems in PE abound (Block, 2016; Columna et al., 2010; Lieberman et al., 2017).

Theoretically-based research in APE has recently adopted the use of SCT and OST. While some APE-specific studies have found that using a collaborative delivery approach of APE services increases the self-efficacy of PE teachers to teach students with disabilities (Umhoefer et al., 2015) and that knowledge about the students, often gained through IEP meetings, was influential towards PE teachers implementation of integrated PE (An et al., 2015), another SCT did not yield the desired results (Haegele et al., 2017). The larger body of SCT literature in adapted physical activity, on the other hand, tended to show the theory as a useful basis for study design and interpretation (e.g., Martin et al., 2013; Stapleton et al., 2016; Suh et al., 2011). Finally, there is a scarcity of OST research regarding individuals who pursue careers teaching PE/APE to students with disabilities (Wilson et al., 2017). What does exist, demonstrates the varying strength of acculturation socialization (O'Leary et al., 2015; Park et al., 2018), the importance of quality APETE programming (Park et al., 2018) and gaining specialized expertise (Sato et al., 2016), and the need for a supportive work environment for inservice APE teachers (Park et al., 2018).

A Two-Theory Approach. This study utilized both SCT and OST to make better sense of the phenomena surrounding PE and APE teachers' knowledge and implementation of LRE. The SCT was considered during the creation of the online survey instrument through the targeting of personal factors (i.e., teachers' knowledge of

LRE), environmental factors (e.g., administrator support, access to resources, barriers to LRE), and behavioral factors (i.e., LRE implementation practices). Further, the SCT permitted a broad understanding of and organizational framework for the data and was utilized in much the same way as in the study by An et al. (2015). The OST was instrumental in more deeply analyzing and understanding the socializing experiences that explained the participants' LRE knowledge and behavior, as well as influential environmental factors (e.g., barriers). This information was largely collected during the follow-up interviews and open-ended survey responses and drew specifically from the professional and organizational phases of socialization. The interview script was created to target these two phases. By applying these two theoretical frameworks during the study's creation, analysis of data, and data interpretation, a more profound understanding of the data was possible.

Mixed Methods

To better understand the utility and appropriateness of the mixed methods (MM) approach for the present study, a brief description of the strengths and weaknesses of the quantitative (QUAN) and qualitative (QUAL) methodologies must be discussed.

Quantitative Methodology. QUAN research is often confirmatory or descriptive in nature, aligns well with a positivist perspective, and usually deals with numerical data (Teddlie & Tashakkori, 2009). As outlined by Castro, Kellison, Boyd, and Kopak (2010, p.1), the strengths of QUAN methods include:

- accurate operationalization and measurement of a specific construct
- the capacity to conduct group comparisons

- the capacity to examine the strength of association between variables of interest
- the capacity for model specification and the testing of research hypotheses

As a QUAN researcher would contest, these strengths lend themselves to establishing a level of objectivity and truth that cannot be matched by QUAL methods. Indeed, the use of QUAN methods can permit the determination of causal inferences as well as the relationship between variables through statistics. In fields such as medicine and public health, QUAN methods—especially randomized controlled trials—are seen as the gold standard.

While QUAN methods have also been traditionally very dominant in social sciences (Teddlie et al., 2009), a major weakness is its perceived detachment from "real-world" contexts (Moghaddam, Walker, & Harre, 2003), otherwise known as decontextualization (Virue1l-Fuentes, 2007). QUAL researchers claim that QUAN research has an inherent lack of depth, an absence of rich detailed accounts, which are required when analyzing complex human, family, or cultural experiences.

Qualitative Methodology. QUAL research is an extensive approach to the study of social phenomena; an approach which is "naturalistic, interpretive, and increasingly critical" (Marshall & Rossman, 2010) and counts among its narrative data sources: interviews, focus groups, artefacts, written history, and reflective logs. The main strength in the QUAL method lies in its fully contextualized approach (Gelo, Braakman, Gerhard, & Benetka, 2008). That is, its ability to examine the "whole person" within that individual's specific context. Such an approach lends itself to detailed, thick descriptions, which is a strategy to increase any findings' credibility—QUAL's version of internal

validity (Shenton, 2004). A QUAL approach allows for a depth of information that is not generally associated with QUAN projects. Further, while QUAN researchers may call it a weakness, QUAL researchers typically embrace their influence in the research process. That is, they see themselves as the instrument (much like a constructivist would). Importantly, it is also typical practice for QUAL researchers to provide a reflexivity statement in their papers, which discloses any worldviews (e.g., paradigms) or biases that influence the researchers' interpretations of the results.

One notable limitation of the QUAL method is the inherent challenge in the reliable integration of information across multiple interviews, observations, or cases (Kirk & Miller, 1986). Without an effective data analysis plan in place, it could be difficult to find and assess links, associations, or themes between the observations or cases. Thus, the potential for threats to trustworthiness exist. Further, QUAN researchers have been known to be heavily critical of the generalizability issues due to the typically small sample size of QUAL project (Castro et al., 2010). While QUAL researchers (Denzin & Lincoln, 1994) have argued that generalizability and other QUAN terminology are not relevant to QUAL, whereas QUAN community regard QUAL methods as methodologically weak when it comes to the scientific process (Dreher, 1994).

Mixed Methods. The MM approach has been seen as a bridge between the QUAL and QUAN divide (Haverkamp, Morrow, & Ponterotto, 2005), emphasizing the strengths of each while diminishing the weaknesses of either lone methodology. Research using MM consists of the collection, analysis, and interpretation of QUAN and QUAL data in a single study (Creswell, 2009; Creswell & Plano Clark, 2007). This is

accomplished through the purposeful combination of QUAL and QUAN techniques, which offers the thick description of text narratives and the precision in measurement afforded by QUAN numeric data (Hanson et al., 2005).

The present study utilized a sequential, MM design (Teddlie et al., 2009) through an online survey that yielded QUAN and QUAL data. The QUAN data allowed for more generalizable data through use of group comparison statistical analyses and descriptive statistics—something that QUAL analyses alone would not permit. The QUAN data provided an overall picture through which to interpret the data. However, to achieve the depth of information required by the research questions—that QUAN procedures could not capture—QUAL measures within the survey and follow-up semi-structured interviews provided the thick, detailed narratives. This process gave a deeper sense of understanding and contextualized (Gelo, 2008) the QUAN data. Ultimately, the MM design made the present study more dynamic in that multiple sources of data—both QUAL and QUAN—were integrated to paint a more complete picture of the results through methodological triangulation (Denzin, 1978).

CHAPTER 3

METHOD

Study Design

To address research aims of this study, a sequential, mixed method design (Teddlie et al., 2009) was employed. Mixed methods research allows researchers to collect, analyze, and interpret quantitative and qualitative data in a single study (Creswell, 2009; Creswell, & Plano Clark, 2007). A meaningful combination of thick narrative descriptions and numerical data are characteristic of this approach (Hanson et al., 2005). This study benefited from the reciprocal nature of quantitative and qualitative data, and thus, greater depth of understanding was achieved by fully contextualizing the information yielded by both methods (Gelo et al., 2008). Further, by espousing both quantitative and qualitative methods, this mixed methods design took advantage of method triangulation (Denzin, 1978), which served to enhance the trustworthiness and credibility of this study's results (Lincoln & Guba, 1985).

The first phase of this mixed methods design captured quantitative and qualitative data on the knowledge and practice of LRE implementation via an online survey. The second phase was composed of follow-up semi-structured interviews (Patton, 2015) with purposive sampling from the participant pool. Prior to the recruitment of the participants, Institutional Review Board approval was obtained (see Appendix A).

Participants

In the interest of collecting comprehensive information on issues of LRE implementation, participants were individuals who met one of two inclusion criteria: 1) currently licensed PE teachers in Virginia, or 2) nationally certified APE teachers (i.e., CAPEs). PE teachers were specifically recruited from Virginia due to the state's licensing system that permits them to also teach APE.

Collecting data from these two groups allowed a comparison of the knowledge and experiences of PE and APE teachers pertaining to LRE implementation. Demographic information that was collected included gender, ethnicity, age, degree, level of instruction (i.e., elementary, middle, or high school), in what state participants taught, CAPE status, and years taught. Additionally, the demographic portion captured participants' teaching contexts. These variables included the placement(s) in which they taught students (e.g., GPE, self-contained settings), the number of students taught or served, the types of LRE decisions participants made and how often, their perceived competence in making such decisions, and the amount of PE instructional time received by students with and without disabilities.

Procedures

Recruitment. Participants were contacted and recruited through state education administrators, teacher listservs, and chain sampling. The State Director of Health, Physical Education, Recreation, and Kinesiology was asked to distribute the research recruitment poster via listserv of the current PE teachers in Virginia. To recruit APE teachers (i.e., CAPEs), the Adapted Physical Education National Standards database listserv was used for identification and recruitment. Additionally, chain sampling, rolling

enrollment, and multiple email prompts were used to further increase sample size and response rate among the PE and APE teacher groups. These strategies were used to reach the target sample size, which an a priori power analysis (G*Power, V 3.1.9.2) computed was 84 total participants, with 42 each in the PE teacher and APE teacher groups. Finally, purposive sampling was then employed to recruit a representative subsample from each teacher group for follow-up phone interviews, which explored their experiences with LRE implementation in more depth.

Data Collection Protocol. Once individuals agreed to participate, they received the survey link through their primary email accounts. Prior to accessing the content on the survey, participants had to electronically complete a consent form and read a short webpage of survey guidelines. These guidelines asked that participants complete the survey in one session, not to use outside resources, and to answer as completely and honestly as possible. To increase the quality of responses on the five, mandatory open-ended survey items, such items were bolded and highlighted in blue text to attract attention and remind the participants to fully provide a response.

After approximately 60% of the survey data was collected, semi-structured phone interviews were conducted with the purposively selected subsample from the PE and APE groups, ensuring that data would be representative of both groups. Twelve participants (six PE and six APE teachers) were initially sought for the interviews with the objective to achieve data saturation. Data saturation, or thematic saturation, refers to the point when qualitative data collection and analysis identify no additional issues—when coded themes become repetitive (Kerr, Nixon, & Wild, 2010). At this point, data collection becomes redundant and further data collection and analyses are unnecessary

(Saunders et al., 2017). While the interviews followed a script, they were designed to be conversational, to increase the comfort level and dialogue between researcher and participant. The interviews were recorded and then transcribed so that they could be analyzed.

Instrumentation

Conceived in Theory. Since survey research through online platforms has become increasingly useful to capture more nuanced information in new ways (Willis, 2011), an online survey (see Appendix B) was created to capture the knowledge and implementation of LRE of PE and APE teachers. The survey was designed using Bandura's (1986) social cognitive theory (SCT). Since SCT operates based on the dynamic and multi-directional interaction between personal factors, the environment, and behavior (Bandura, 2001), items pertaining to personal factors (i.e., LRE knowledge of the teachers), the environment (i.e., external barriers to implementation of LRE), and the behavior (i.e., the implementation practices of LRE) guided the survey's initial construction. See Appendix C for a breakdown of how SCT guided each survey item.

Instrument Development. The online survey took the form of a mixed methods questionnaire (Teddlie et al., 2009) on Qualtrics (Qualtrics, Provo, UT). In line with recommendations set forth by Rea & Parker (2005), the design of the survey's items sought to address issues of clarity, comprehensiveness, and acceptability throughout each phase of their development. During the initial construction of the survey, items were formed through a comprehensive review of special education legislation (i.e., IDEIA, 2004). This review became the basis of how the participants' knowledge of LRE would be tested. The survey contained both quantitative (e.g., rating scales) and qualitative (i.e.,

open-ended responses) that captured participants' knowledge of and experiences with LRE implementation. Further, the survey included two distinct sections: 1) testing knowledge through closed- and open-ended questions and 2) applying that knowledge to five different teaching scenarios.

After the initial survey was created it was disseminated to 10 APE graduate students to perform an initial feasibility test and to begin establishing face-validity. A majority of the graduate students (70%) reported that the survey largely seemed like a quiz and that it was lengthy. The graduate students were also asked if they agreed that the items seemed to measure the major components of the special education law that teachers would need to know to make appropriate LRE placement decisions and 100% agreed. The graduate students were then asked similar questions regarding whether the items captured what PE/APE teachers were doing out in the field regarding LRE and whether it matched the law's intent (and why) and 90% agreed. The results from this initial feasibility test led to a few changes on the survey. First, the last scenario did not seem to represent the construct that the initial research questions sought to answer. Instead, this scenario posited a more opinion-based response on the true/false statements that was not aligned with the study's aims and research questions, so it was dropped. Second, some of the items were edited to enhance readability and comprehensiveness of the questions and responses. This mostly included fixing minor typographical errors and grammatical structure. Third, regarding the functionality of the online format, several cosmetic changes were made to enhance the user experience (e.g., items were reorganized and divided into different pages). Finally, based on the feedback received, the number of required open-ended responses was dramatically reduced (from twelve to five) and was

replaced with close-ended items that still captured the desired content. Ultimately, these changes also served in reducing some of the length and survey time commitment (from approximately 35 minutes to 25 minutes).

It should be noted that the data collection procedures also included an interview script for the follow-up phone interviews with the purposively selected participants. This script was formed based largely on the survey responses and drew from a socialization interview script by Curtner-Smith and colleagues (2008). Since this study's interview script was guided by OST, it was reviewed by an independent expert in teacher socialization prior to its use. See Appendix D for the final version of the interview script.

Validity and Reliability. To establish content validity, the online survey was sent off to a panel of four experts: two university faculty in APE and two in PE. The experts each received two links—one leading to the participant version of the survey and one leading to the expert reviewer version. The experts were told to first complete the participant version so that they would gain insight into the user experience (e.g., how long the survey took to complete, what it was like to go through and provide responses for each item, etc.) prior to evaluating the instrument. The experts reported that the participant version took an average of 25.5 minutes to complete (min = 20, max = 35). Next, the experts accessed the link to the reviewer survey where they could evaluate how closely each item measured what it intended to measure. Items that scored below a rating of 80 on a 100-point scale were flagged, discussed, and then addressed by the researcher. The changes made based on expert reviewer recommendations were mostly minimal (e.g., grammatical and editorial adjustments). The few notable changes included clarifying several items and response options, such as changing the response choice from

"offering suggestions [to the IEP team]" to include "writing IEP goals" on an item targeting participants' involvement in the IEP process. In addition, based on expert feedback, the demographic section was moved to the end of the survey (the reasoning being that the participants could fatigue over time so backload the survey with the "easy" items).

To establish reliability, the survey was sent out to over 20 PE and APE teachers to pilot test. The PE teachers resided outside of Virginia as to not contaminate the participant pool while the APE teachers were all CAPE certified. The teachers received the link to the finalized survey and approximately one week later, they received the second link to measure test-retest reliability (Umhoefer, Vargas, & Beyer, 2015). Ultimately, 13 teachers completed this process. To establish reliability, a coefficient of .70 or higher was needed for the quantitative portions (DeVet, Terwee, Mokkink, & Knol, 2011)—this survey yielded a reliability coefficient of $r = .87$. Cronbach's α was also calculated on the Likert-type items and resulted in an α of .83, which suggested that the instrument has internal consistency.

For the qualitative portions, trustworthiness, specifically dependability, is typically used as the quality indicator for reliability (Lincoln et al., 1985). Thus, a thematic structure was developed based on the first survey. The thematic structure was then used to code and compare the qualitative data from the first and second survey attempts. Inquiry audits by an external reviewer of all relevant supporting documents and data were used to enhance dependability to establish reliability for the qualitative portions of the survey.

Data Analysis

For quantitative data, SPSS (IBM SPSS Statistics, Version 24.0) was used to conduct the descriptive and inferential statistics. After statistical assumptions were tested, group comparisons using a MANOVA and follow-up univariate tests (Warner, 2012) were conducted to detect group differences (PE vs. APE teachers) with the significant level set at .05.

For the qualitative data, a rigorous approach through analytic induction and constant comparison (Patton, 2015) was used with NVIVO analysis software (QSR International Pty Ltd., Version 11.4). This process included: 1) open and axial coding (Glaser & Strauss, 1967); 2) development of a preliminary codebook; 3) pilot testing of the codebook; 4) the final coding process; and 5) reviewing the codebook and finalizing themes. Through the constant comparison process (Glaser et al., 1967) the codebook continued to evolve and change over time as new data were coded. Data were first analyzed within each case (i.e., each group), and then cross-case analysis facilitated the comparison of the two groups (Patton, 2015). The finalized thematic structure is in Appendix E. Trustworthiness will be established through triangulation of data sources, member checking, peer debriefing, negative case analysis, an audit trail (Lincoln et al., 1985), and multiple investigators (Denzin, 1978).

Reflexivity/Positionality Statement

The principal investigator of the present study recognizes himself as an instrument, through which the study was conceptualized and designed; through which data were collected and interpreted. The investigator is trained as a physical educator, but most recently as an adapted physical educator and so he has more shared experiences

with one group (APE teachers) than the other (PE teachers). Further, he is shaped by his previous research into the experiences of preservice APE teachers. Nevertheless, the investigator strives to accurately describe the experiences of this study's participants through use of research journaling and an audit trail.

CHAPTER 4

RESULTS

The purpose of the study was to utilize a mixed methods design to examine how PE and APE teachers make decisions regarding LRE implementation and what factors influence those practices. Specifically, teacher knowledge and implementation of LRE-related law as well as barriers to such implementation were investigated. The following organization of Chapter 4 details: 1) demographical data pertaining to the sample and 2) the results arranged according to research aims and questions. Further, quantitative and corresponding qualitative results were presented for the research questions of each aim. Quantitative and qualitative results were organized together in an effort to demonstrate the integration of data of this mixed methods design. Finally, all reported names of the interview participants were pseudonyms.

In total, 78 participants (30 PE teachers and 48 APE teachers) completed the survey component of the study from an invitation sent out to over 600 teachers via email. The demographics questionnaire revealed participants were largely white (n = 73; Hispanic n = 3; African American n = 2) and female (n = 51; male n = 27). The total mean age was 44.91 years (SD = 10.81), with PE and APE teachers' mean ages being 42.81 (SD = 10.02) and 46.21 (SD = 11.19), respectively. The years of teaching averaged to 15.86 (SD = 10.66), with PE and APE teachers reporting that they have taught for 15.07 (SD = 10.48) and 16.35 years (SD = 10.85), respectively. An analysis of age and years taught revealed no statistically significant differences between PE and APE groups.

By design, all PE teachers taught in Virginia while the APE teachers taught in 21 different states, as they were recruited through a national database (see Table 1).

APE Teachers by State			
AK	1	NC	2
CA	7	NJ	2
CO	2	NY	2
FL	2	OH	2
GA	1	PA	2
IN	1	RI	1
KS	1	TX	7
LA	1	UT	1
MA	1	VA	6
MD	4	WI	1
MI	1	Total	48

Table 1. Breakdown of APE teachers by state.

A total of 12 participants (five PE teachers and seven APE teachers) completed follow-up phone interviews. Interview data collection and analysis for the two groups discontinued after data saturation was achieved (Saunders et al., 2017). The determination of data saturation for the PE and APE groups utilized the qualitative data from the survey's open-response items (i.e., the responses from 30 PE and 48 APE teachers) in addition to the interview data. To this end, 99% of participants provided useable data on the open-response items. More interviews with APE teachers were necessary to achieve saturation as more variation in thematic coding existed, most likely due to the unique influence of teaching in different states (as opposed to the PE teachers who all taught in one state).

The interview participants were purposively selected based on levels taught (e.g., elementary, middle school, etc.) and age to ensure a more accurate capturing of teaching experiences. Further, APE teachers were also selected based on what state they taught in

to ensure that a single state was not represented more than once in the interview data. Teaching in states that were represented more heavily in the survey portion (e.g. California, Texas, Virginia) was considered in the purposive selection for interviews. While not analyzed, age and years taught were not controlled for in the interview group. A detailed demographic description of the interview participants can be found in Table 2.

Name	Gender	Age	Teach	Bachelors	Masters	Teaching Level	State	Years taught
Kim	Female	43	PE	PE	PE	PK, ES	VA	19
Michelle	Female	35	PE	PE	-	ES	VA	13
Craig	Male	45	PE	PE	-	PK, ES	VA	21
Emily	Female	53	PE	PE	-	MS	VA	29
Kayla	Female	53	PE	hospitality tourism	PE	HS, ES	VA	18
Laura	Female	44	APE	PE, SPED	APE	PK, ES, MS, HS	TX	13
Melody	Female	36	APE	PE	APE	ES, MS, HS	VA	11
Leonard	Male	30	APE	PE, APE	-	PK, ES, MS, HS	CA	6
Justin	Male	33	APE	PE, APE	PE	ES, MS	WI	10
Roselyn	Female	43	APE	PE	APE	PK, ES, MS, HS	OH	17
Kevin	Male	39	APE	PE, APE	PE, APE	PK, ES, MS, HS	MD	17
Michael	Male	41	APE	health and wellness	education	MS, HS	FL	12

Table 2. Demographic information of interview participants. Key: PK = preschool; ES = elementary school; MS = middle school; HS = high school.; SPED = special education

Project Aims and Research Questions

The results of the present study reported below were the product of a mixed methods data analysis. Each research aim was addressed through use of quantitative data (from the survey) and qualitative data (from the survey's open-ended questions and the interviews). Statistically significant group differences of LRE knowledge and implementation between PE and APE teachers were found through a MANOVA, *F* (44,

33) = 2.60, $p < .005$; Wilk's $\Lambda = .224$, partial $\eta^2 = .78$. When examining the results, the total mean (*M*) of each variable, which was the combined mean for both PE and APE groups, was reported. In cases of a significant ($p < .05$) follow-up univariate test, the differences in means of those variables were also reported. These univariate tests were included below as appropriate in answering each research question. See Appendix F for SPSS output. In providing context for the quantitative results, qualitative analysis revealed the emergence of four themes and nine subthemes, which were also reported below as appropriate (see Table 3 for list of themes).

Theme	Subtheme
Importance of teacher training	• Discrepancy in coursework emphasis • APE teachers received more APE practica, still lacked practice with LRE decision-making
Varying degrees of understanding of special education legislation	• Multiple interpretations of Least Restrictive Environment • Multiple interpretations of the purpose and intent of IEPs
Implementation of Least Restrictive Environment, IEPs, and PE services	• Implementation of Least Restrictive Environment • Development and implementation of IEPs • Wide variation in the PE/APE services rendered to students with disabilities
Barriers to Least Restrictive Environment implementation	• Issues of Resource Allocation • Demanding duties exacerbated by marginalization

Table 3. List of themes and subthemes.

Finally, it should be noted that results from the five survey scenarios—originally designed to test knowledge of special education legislation—were not reported because they added no additional understanding beyond the other survey components. The scenarios are discussed in more detail in Chapter 5.

Aim 1: PE/APE teachers' knowledge on relevant IDEIA mandates. Aim 1 examined the participants' knowledge of LRE-related IDEIA mandates. The three

research questions of this aim targeted the understanding of IDEIA's purpose and intent of: 1) physical education, 2) individual education programs, and 3) LRE.

What do PE/APE teachers know about PE's purpose and intent, according to IDEIA? There was a significant difference between PE and APE teachers' self-assessments of their knowledge regarding IDEIA's definition of PE, F (1, 76) = 16.16, $p < .001$; partial $\eta^2 = .18$. With a score of five being complete understanding, PE teachers rated their understanding at 3.70 (*SD* = .84), while APE teachers reported 4.38 (*SD* = .64). While not significantly different ($p > .05$), APE teachers scored 2.65 (*SD* = 1.06) to PE teachers' score of 2.27 (*SD* = 1.20) out of a perfect score of five, in a measure of actual knowledge of IDEIA's purpose and intent of PE (i.e., variety of sports and fundamental motor skills, developed physical and motor fitness, specially designed PE for students who required it).

What do PE/APE teachers know about the purpose and intent of IEPs, regarding PE/APE? Comparing the perceived understanding of PE and APE teachers yielded significant differences, F (1, 76) = 14.74, $p < .001$; partial $\eta^2 = .16$. With a score of five being complete understanding of IDEIA's intent of IEPs, PE and APE teachers rated themselves at 3.93 (*SD* = .78) and 4.56 (*SD* = .65), respectively. However, when asked what the overall purpose and intent of IEPs only 33.33% of PE teachers and 14.58% of APE teachers selected the correct response of *ensuring that students are working on and achieving their APE program goals throughout their time in the public schools*.

Qualitative data from the surveys and interviews provided more insight through the theme *varying degrees of understanding of special education legislation*, with the

emphasis on its subtheme, *multiple interpretations of the purpose and intent of IEPs*. Qualitative data analysis revealed variations in PE and APE teachers' understanding of the role of IEPs, with the APE teachers generally having a more nuanced grasp of the IEP process. One APE teacher responded on the survey, "after the student has been determined to be eligible for special education and APE, you need to figure out the needs of the students and how the program will be run. Individual goals then need to be implemented for each student and the program" (APE teacher, survey). Another APE teacher recognized if the current IEP goals are inappropriate, they must be revisited, "students' goals can change from year to year depending on their physical growth or in some instances the student's health declines and the goals need to be modified depending on their physical strengths" (APE teacher, survey). Some PE teachers were not as aware of the IEP process. Craig, a PE teacher, when asked about IEP decisions, shared, "Well, I think it's special education, the behavior specialist, the principal, the assistant principal. They're all in there together…if [students] come in and they don't have an IEP, they're in the regular setting" (Craig, PE teacher, interview). Kayla, another PE teacher, added, "honestly, I'm not really included in IEP meetings. So I still don't really have much knowledge of how that plays out" (Kayla, PE teacher, interview). Similarly, Michelle offered, "They were like we need some gen ed teachers to start sitting in on IEPs…and I would get in there and I'm like I have no idea about anything y'all are talking about" (Michelle, PE teacher, interview).

However, negative cases existed as some PE teachers were more knowledgeable about the process, "IEPs are designed for each student based on identified needs. Goals should be aligned with the general curriculum as much as possible but also should be

developmentally and age appropriate" (PE teacher, survey). An APE teacher added, "We want them to progress in the Gen Ed PE curriculum. We…write goals that help the student acquire the skills that will be of the most benefit to them in gen Ed PE…based on their baseline, rate of growth…" (APE teacher, survey).

What do PE/APE teachers know about LRE's purpose and intent? There was a significant difference between the perceived understanding of LRE between PE and APE teachers, F (1, 76) = 23.48, $p < .001$; partial $\eta^2 = .24$. With a score of five being complete understanding of IDEIA's intent for LRE, PE and APE teachers scored at 3.70 (*SD* = .84) and 4.48 (*SD* = .58), respectively. When asked to rate how essential factors (e.g., knowing the definition of special education and PE, knowing what must be included on the IEP) were to the PE placement decisions of students, no group differences were detected among the variables (see Table 4 for the results of the univariate tests and total means for each of these variables).

Variable	*F*	*p*	partial η^2	*M** (*SD*)	*m** PE (*SD*)	*m** APE (*SD*)
Knowing the definition of special education	.38	.54	.005	79.46 (23.74)	77.37 (22.90)	80.77 (24.40)
Knowing the eligibility criteria for special education	.19	.66	.003	80.82 (23.06)	79.37 (25.34)	81.73 (21.74)
Knowing that PE is a direct service	.04	.84	.001	82.40 (25.29)	83.13 (19.90)	81.94 (28.34)
Knowing the definition of PE	.52	.47	.007	80.88 (23.57)	78.43 (25.24)	82.42 (22.60)
Knowing when specially designed PE (i.e., APE) is required and what it is	.18	.67	.002	91.94 (13.14)	91.13 (15.30)	92.44 (11.74)
Knowing what must be included on IEP regarding APE	1.35	.25	.017	88.60 (18.09)	85.60 (21.89)	90.48 (15.21)
Knowing what placement is a student's Least Restrictive Environment	1.55	.22	.020	90.27 (18.23)	87.03 (19.76)	92.29 (17.10)

Table 4. Rating of how essential it was to know about these factors to the placement of students with disabilities. Note: *a score of 100 indicates completely essential.

Further, a majority of PE and APE teachers knew that school districts should never allow a lack of resources to be reasoning to exclude students from what would be their LRE, at 66.67% and 83.33%, respectively. In an open response item on the survey, understanding of LRE was conflated with the philosophy of inclusion in 23.33% and 4.17% of PE and APE teachers, respectively. These teachers' responses tended to simplify LRE and included sentiments that teaching students in general PE was teaching students in the LRE.

These data can be better understood when considered with the theme *varying degrees of understanding of special education legislation*, with the emphasis on its subtheme, *multiple interpretations of the Least Restrictive Environment*. Qualitative data analysis revealed variations in PE and APE teachers' understanding of the principle of LRE, with APE teachers generally having more complete understandings. Some PE teachers defined LRE in terms of providing any modifications necessary so that all students could be successfully included in general PE, "We are required to adapt our lessons to meet the needs of individuals with disabilities" (PE teacher, survey). "Least Restrictive Environment includes making it safe physically for the students, but also to adapt teaching wise in order to help them be successful" (PE teacher, survey). Kim added, "So again, I have to make all those accommodations, so I feel that it's sort of that concept of [LRE]" (Kim, PE teacher, interview). Other teachers misunderstood LRE, "I believe the intent of the law is to expose those students with disabilities in an environment with other students so that not only will they get some physical activity, but

more importantly for the social/emotional aspect of physical education" (PE teacher, survey). Emily, a PE teacher, offered:

> So I would say [LRE] is exposing a student to an environment with a variety of other students with different abilities, levels, etc…when you get to a point when the issues interfere with the learning of other students, then can we change a student to another least restrictive environment which is better? (Emily, PE teacher, interview).

Several PE teachers described the phrasing "maximum extent possible" in their responses but still do no capture the entire concept of LRE, "LRE is to the maximum extent appropriate; An IEP team is formed and usually the administrator determines or has the power to make the decision of what type of placement" (PE teacher, survey). Further explained, "Children with IEP's should receive instruction in general education classes with their peers as much as possible" (PE teacher, survey). A few PE teachers described LRE more completely. "All children should have as much access to the general ed. environment as possible with necessary modifications…until the point at which the gen. ed. environment itself imposes restrictions which prove to not be valuable, helpful, or safe for the child" (PE teacher, survey).

Many APE teachers described LRE more completely, including emphasis on the continuum of alternative placements. "I really see it as more of an appropriate placement [that] allows them to reap the benefits of the instructional program. And that could be in a self-contained setting…an inclusive setting with services…or with supplementary aids…to access the curriculum" (Kevin, APE teacher, interview). Another APE teacher described LRE as a "continuum of placements, from least restrictive—[students with

disabilities] in PE no support—to most restrictive–[students with disabilities] seen 1:1…I always aim for placement in GPE with varying degrees of support, since this gives them the same access as their gen ed peers" (APE teacher, survey). Roselyn recognized the importance of moving students from more restrictive, self-contained settings to lesser restrictive settings, saying, "…it's trying to get [students with disabilities] out of my self-contained Adapted PE class…each year we are able to get a couple students out [into] other PE programs" (Roselyn, APE teacher, interview).

Melody, an APE teacher, stressed the importance of students being successful while distinguishing LRE from the philosophy of inclusion, stating, "Inclusion is not always successful…And some teachers just want to throw them in there regardless and just call it inclusion and paint a pretty picture. And they're in there keeping score on the sideline. That's inclusion. No, it's not" (Melody, APE teacher, interview). Another APE teacher, Justin, reflected that it seemed that LRE was open for interpretation in his district:

> …the least restrictive environment in my mind is going to be that environment that is best for that student so that they are learning…So we need to put them in whatever environment best suits them to meet those IEP goals. That's my interpretation of it. I don't know if everybody in the districts I work in always agrees with it. Currently, the district I'm at right now, their philosophy is a fully-inclusive philosophy (Justin, APE teacher, interview).

This research question was also informed by the *importance of teacher training* theme and its subthemes**,** *Discrepancy in coursework emphasis* and *APE teachers received more APE practica, still lacked practice with LRE decision-making.* The PE and

APE teachers' understanding of LRE was inextricably linked to data gathered on their experiences in formal teacher training.

Almost exclusively, PE teachers had much less APE-related coursework than their APE counterparts. "…I had one semester of adaptive PE. That was the requirement. It was a three-credit course. But as it goes with any other courses that we took-- as I said before, we were doing more sport-oriented" (Kim, PE teacher, interview), while Kayla stated, "we took a class—trying to think what—adaptive PE, I guess it was. Learning about different disabilities and different birth defects, illnesses, diseases, different things that we might be dealing with as a teacher" (Kayla, PE teacher, interview). Melody, who had received a similar coursework experience when she was trained as PE teacher, provided a stark contrast between that and her subsequent APE teacher training:

> I took one 3-credit hour [APE] course…in the 4 years I was [at college]. And it was, I want to say it was end of my junior or beginning of my senior year…It was taught by an exercise phys. guy, so he had no idea. "I'm not working with kid with disabilities". And I could tell that. I was like, "Are you the right one to be teaching this course?" And my pedagogy teacher, my PE teacher, was awesome at teaching us how to be PE teachers, but the adaptive PE course, I mean it was by an exercise strength guy. He didn't care. So he basically gave me a whole bunch of written work, research written work, just busy disability stuff. Write these disabilities. Come up with these games and modifications for these cases…So I just remember thinking that's not enough…This [APE teacher training] is the program I need to get into. This is where I'll learn what I need to learn. But I-- heaven forbid, if I hadn't gone through that program and I only had to rely on my

> course [during my undergrad], which a lot of these PE teachers do, I don't know where I would be (Melody, APE teacher, interview).

Michelle, a PE teacher, agreed with Melody's sentiment. "The only [APE] class that I remember taking…was one semester… I wish I had paid a little more attention in that aspect and been trying to find more adaptive conferences or trainings or, I mean, almost anything at this point" (Michelle, PE teacher, interview).

PE teachers typically described their coursework they did receive as heavily focused on making modifications for students—on the practicality of teaching students with disabilities. "But each one of those [courses], they spent a good portion of, 'Okay, when you teach the lessons and you differentiate, how are you going to adapt this for somebody [with a disability]'" (Kim, PE teacher, interview). Kayla did not recall learning about special education legislation. "Least restrictive environment? Honestly, I don't remember talking about the laws behind special education. I just remember working on the practicalness of what do we do with kids that can't do something that everybody else can do" (Kayla, PE teacher, interview).

While APE teachers received much more APE coursework, several of them, much like their PE counterparts, felt that their coursework did not fully prepare them to implement LRE (i.e., they had knowledge *of* LRE but not as much on *how* LRE should be implemented). Leonard, an APE teacher, recalled his initial thoughts of LRE during his coursework and how he was not prepared to actually implement it:

> I just threw it in with the rest of the acronyms that I was going to need to figure out by the time I started teaching. But I really didn't realize the importance of least restrictive until I actually started teaching. So yeah, I did understand the

> concept, but really as I was attending [my university], I really had no idea how important it was pertaining to what you're doing as a teacher. I just knew least restrictive environment. It's an acronym, basically keeping the students with their peers and trying to mainstream and promote inclusion. But yeah, again, really didn't get to break down least restrictive environment until I started teaching (Leonard, APE teacher, interview).

When prompted to recall what he learned about LRE through his coursework, Michael added, "I honestly have no idea…All I remember is it was a lot of searching for answers on the Internet which led me to join a whole bunch of groups and stuff like that" (Michael, APE teacher, interview).

Notably, the differences in field experience during teacher training were revealed through the subtheme, *APE teachers received more APE practica, still lacked practice with LRE decision-making*. Not surprisingly, APE teachers received more practicum experience teaching students with disabilities, however members from both groups felt that these experiences did not allow them to practice implementing LRE. When asked how much he was able to practice implementing LRE decisions during his PE training, Craig shared, "some, because we had some kids that were in our regular PE class that needed different adaptations and stuff. Like, maybe they had braces on their legs and needed different—you just needed to adapt it a little bit." However, his full participation in the LRE process was prevented because, "they didn't really let student teachers sit in on IEPs because of the confidential stuff" (Craig, PE teacher, interview). Fellow PE teacher Emily explained that she hardly had student teaching experience with students with disabilities, let alone practice making any type of LRE decisions. "Student teaching,

I did high school for half and elementary for half. I'm trying to think if I did an adapted [class]…Not as much [experience teaching students with disabilities] as students that did not have disabilities." Emily further learned during student teaching that:

> …[the LRE] decision was already made for you. It was not up to you [as the PE teacher] to make that decision. Somebody else was saying, "Yes, we feel like this student, this class is LRE for them, so they're going to be here," or, "No, we feel like it's not and they're going to be in another class." But it was out of our control (Emily, PE teacher, interview).

APE teachers expressed similar experiences during practica. Roselyn added, "the problem was, I remember [my professor] was saying, 'You're neither fish nor fowl.' Because we weren't hired by the school systems, we couldn't look at the IEPs [in order to practice LRE decision making]" (Roselyn, APE teacher, interview). Justin commented, "…the biggest thing I learned as an undergrad was that every district looked at [LRE] vastly different, and it all is up to that Pupil Services Director and how they interpret things, is how I read it" (Justin, APE teacher, interview).

Aim 2: The actual implementation of decision-making essential to LRE placement. Aim 2 examined the participants' actual implementation of decision-making regarding issues essential to LRE placement. Specifically, the three research questions focused on the implementation of: 1) physical education's intent for students with disabilities (i.e., what the PE/APE services for students looks like), 2) individual education programs, and 3) LRE. The research questions of this aim draw from the qualitative theme of *implementation of Least Restrictive Environment, IEPs, and PE services*.

How do PE/APE teachers implement PE's intent for students with disabilities?

Regarding implementation of A/PE instruction, 23.33% of PE teachers and 58.33% of APE teachers reported they provided all A/PE services that are outlined in IDEIA's definition of PE (i.e., taught variety of sports and fundamental motor skills, developed physical and motor fitness, specially designed PE for students who required it). Affective components were included in the A/PE delivery of 40.00% and 52.08% of PE and APE teachers, respectively. Cognitive components were included to a lesser extent, with 33.33% of PE teachers and 45.83% of APE teachers utilizing them.

Qualitative data analysis revealed *wide variation in the PE/APE services rendered to students with disabilities*. These services included not only diversity of foci (e.g., motor skills, affective and cognitive domains), but also occurred in different settings (e.g., hospitals, special schools, public schools). When asked to provide a sense of how PE/APE was taught to students with disabilities, several PE teachers opted to expand through open-ended survey response. Much like in their interpretations of LRE, PE teachers focused on accommodations. "I develop of Physical Education program of inclusion that allows ALL students to learn regardless of ability" (PE teacher, survey), and "I differentiate my lessons as students need them to be to achieve success" (PE teacher, survey). Craig explained that, in his 21 years of teaching, he had not taught a lot of students with disabilities. "We've had a few. And I got a few now at the school I'm at. But it's nothing that a little bit of differentiation [won't do] and they can handle pretty much anything" (Craig, PE teacher, interview). Another PE teacher elaborated further:

> I also believe we have a well-written, broad-based, developmentally appropriate PE curriculum for gen. ed. I teach in a progressive fashion and I acknowledge that

> not all children develop at the same rate…I teach a child and facilitate learning at their rates and abilities by offering various equipment choices as one small example of the many ways I use differentiation (PE teacher, survey).

APE teachers responded similarly:

> I provide specially designed physical education that aligns with and follows along with the general education curriculum where students can work on skills that address personal needs in a developmentally appropriate situation. Students gain both cognitive and affective development through the physical education instruction, as it is a necessity in engaging in sports, fundamental skills, physical and motor fitness (APE teacher, survey).

And, "I do individual skill practice and group cooperative games to increase physical and social skills. I include cognitive aspects…My curriculum is similar to that of gen. ed. however it's adapted to meet the needs of my students" (APE teacher, survey).

Unlike their counterparts, APE teachers frequently taught in diverse settings, as an extension of the continuum of alternative placements. Roselyn described her teaching of APE as "off to the side…sometimes there's another…regular PE class going on at the same time, and sometimes we can join in with them…once in a while they invite us into some of their games" (Roselyn, APE teacher, interview). Michael on the other taught at a special school. "I've been at a self-contained school…So as I said, 100% of our kids are [exceptional student education students]" (Michael, APE teacher, interview). Laura expounded on her diverse caseload:

> It's all levels…Our self-contained classes are called ALE, applied learning environment. PVCD is our [kindergarten kids] that is under special ed

> umbrella…and those kiddos we might service in PE...I'll be going into the school to see a student who's in [general] PE…but he has support...We also have the violent units as well, that are really contained and restricted. They can't go out to PE. But we'll go in and service (Laura, APE teacher, interview).

Justin added, "I actually picked up kids in order to have an adapted PE teacher [instruct them in] the LRE…But it was really adapted PE [that I taught] at a state mental health institution for three years" (Justin, APE teacher, interview). While Emily, a PE teacher, did not teach a self-contained class herself, she remarked, "I would say we're 95% full inclusion. The students that come to the gym with their assistants and with their SPED teacher, they are a self-contained. And that's called a community education class, where they are taught life skills so that after high school, they can live as independently as possible" (Emily, PE teacher, interview).

How do PE/APE teachers implement IEP decision-making in their teaching situations? A univariate test revealed significant differences between groups in regard to the importance of being involved in determining appropriate IEP goals for students, F (1, 76) = 16.30, $p < .001$; partial $\eta^2 = .177$. With a score of 100 indicating extremely important, PE teachers reported a rating of 77.30 (SD = 29.75) while APE teachers gave a rating of 95.88 (SD = 9.28). Another significant difference was found in the teachers' current involvement in the IEP process (F (1, 76) = 24.25, $p < .001$; partial $\eta^2 = .242$). With 100 being complete involvement, PE and APE teachers rated their involvement in determining IEP goals at 30.12 (SD = 39.37) and 75.21 (SD = 39.30), respectively. Further, when it came to participating in IEP decisions related to LRE placement, 50.00%

of APE teachers and only 10.00% of PE teachers reported that it was in their purview to justify the most appropriate placement of students.

The *development and implementation of IEPs* subtheme provided added depth to how teachers implement IEP decision-making. A stark contrast was revealed between the involvement levels of PE and APE teachers in the IEP process. Many PE teachers were not involved in or knew little of the IEP process, as one described, "I have no PE IEP telling me any information. I am never involved in any IEP meetings etc." (PE teacher, survey). Another proffered, "Don't have much of a role in IEP developing or implementing. Occasionally will sit in on an IEP meeting as the general education teacher" (PE teacher, survey). Yet another stated, "I have never been involved in an IEP meeting so I wouldn't know" (PE teacher, survey). Michelle adds, "when it comes to IEPs that's admin and [special education] teachers. Most of the time [when I have attended IEP meetings], it's just to sign off as a general ed teacher" (Michelle, PE teacher, interview). Likewise, Emily shared, "I am the general ed teacher. So what they do is, they look at a teacher's schedule when they schedule the IEP meetings and they look at the teachers who are available at that time…So it's just random who they pick" (Emily, PE teacher, interview). Leonard, an APE teacher, added, "[PE teachers] are always included, for the most part. But as far as carrying out some of the duties, I haven't seen it as much because some of the obligations and we're not there" (Leonard, APE teacher, interview).

Some PE teachers were more knowledgeable on how their schools carried out IEPs and were involved with the process to a degree, especially when it was concerning PE services. "IEPs are developed by Special Ed teachers, general ed classroom teacher,

parents, admin, support staff. APE teachers are only involved when adapted PE goals are implemented" (PE teacher, survey). Similarly, another shared, "We have special ed teachers that head up the program, all teachers, administrators, and parents are involved" (PE teacher, survey). Some PE teachers' involvement only extended to the implementation of the IEPs. "[IEPs] are done and given to me as a teacher" (PE teacher, survey). One teacher seemed skeptical of the process. "After testing supposedly happens APE or classroom teachers create goals" (PE teacher, survey).

Most APE teachers reported that they were more included and instrumental in the IEP process, especially when it came to IEP goals. "In the case of PE within an IEP, IEP goals are created for students who are performing below grade level and who need additional supports/time/etc. to perform curricular goals and motor skills" (APE teacher, survey). Evaluation was recognized as an important part of IEP development. "I base my goals and objectives on the deficiencies in motor skills as evidenced in the evaluation and seen during APE sessions" (APE teacher, survey). Another teacher further elaborated:

> Data is collected on student goals (with objectives) and performance on curricular skills. The data written into a narrative, analyzed, and areas of needs are determined. Those areas of needs are considered and a goal with objectives is formulated. The IEP team then considers accommodation; supplemental aids, services, and supports; transportation, extended school year, and all other areas of the IEP that will support the student's education. The IEP becomes active, meaning all that was discussed is implemented and data is collected on the newly developed goals and objectives. The team can meet at any time to review and revise the IEP, but are required to meet annually and every three years needs to

consider if the student is still eligible for special education services (APE teacher, survey).

Kevin felt like he was an integral part of the IEP team, "especially if I'm the one that's completing the evaluation. I always try to do it collaboratively with the physical education teacher because they're eventually going to be the service provider…I play a significant role in the IEP process right now" (Kevin, APE teacher, interview). Laura sought out responsibilities that would allow her to have more influence in the IEP process. "We…could select what committee and assign duties that [we] would be apart of, and right away I wanted to be one of the evaluators…And so we would go out throughout the district, do evaluations, and then make that determination" (Laura, APE teacher, interview).

However, not all APE teachers were as involved with IEPs. "Honestly, I'm not even part of the IEP team. So there's a kicker. I mean, even though I provide direct service for the students, my county doesn't get teachers involved—or PE teachers involved with IEPs" (Michael, APE teacher, interview).

How do PE/APE teachers implement LRE decision-making in their teaching situations? On a scale 0-100 (with 100 being extremely important), PE and APE teachers were asked to rate the importance of participating in decisions related to LRE. Two univariate tests reveal significant differences between the groups on these decisions pertaining to: 1) conducting a needs assessment for PE (F (1, 76) = 5.89, $p < .05$; partial $\eta^2 = .07$) and 2) eligibility for APE services (F (1, 76) = 8.00, $p < .01$; partial $\eta^2 = .18$). PE teachers rated the importance of being involved the determination of needs assessments and eligibility of APE services for students at 83.27 (SD = 21.45) and 69.63

(*SD* = 32.03), respectively. APE teachers, on the other hand, rated gave importance ratings of 92.98 (*SD* = 13.95) and 87.67 (*SD* = 24.11) on the same measures. Interestingly, a non-significant test revealed that both groups found less importance in being involved in decisions related to eligibility of special services (*M* = 45.28, *SD* = 36.43). See Table 5 for the results of the other univariate tests and total means for these variables.

Variable	*F*	*p*	partial η^2	*M** (*SD*)	*m** PE (*SD)*	*m** APE (*SD)*
decisions that…Determine eligibility for special education	1.28	.26	.017	45.28 (36.43)	39.40 (38.50)	48.96 (34.99)
decisions that...Determine how you will conduct a needs assessment for PE	5.89	.02	.072	89.24 (17.74)	83.27 (21.45)	92.98 (13.95)
decisions that...Determine eligibility for APE service	8.00	.01	.095	80.73 (28.62)	69.63 (32.03)	87.67 (24.11)
decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	1.63	.21	.021	87.79 (20.84)	84.00 (21.49)	90.17 (20.29)
decisions that...Determine what supports will be needed for the placement to be successful in APE	1.60	.21	.021	88.35 (19.68)	84.80 (22.95)	90.56 (17.21)

Table 5. Rating of how important it was to be included in the decisions. Note: *a score of 100 indicates extremely important.

When it came to current involvement in LRE-related decisions, there was a stark contrast between PE and APE teachers—four of the five univariate test revealed significant differences (see Table 6). Differences in levels of involvement were found in determining: 1) needs assessment for PE (F (1, 76) = 20.63, $p < .001$; partial $\eta^2 = .214$), 2) eligibility for APE service (F (1, 76) = 30.39, $p < .001$; partial $\eta^2 = .29$), 3) placement in which students can achieve IEP goals (F (1, 76) = 42.40, $p < .001$; partial $\eta^2 = .36$), and 4) supports that will be needed for the placement to be successful for students (F (1,

76) = 32.30, $p < .001$; partial $\eta^2 = .30$). With a score of 100 being complete involvement, PE teachers were generally less involved than their counterparts with reported scores of 39.60 (*SD* = 42.57), 24.20 (*SD* = 34.40), 25.47 (*SD* = 37.16), and 30.30 (*SD* = 38.73) for decisions related to APE needs assessments, APE eligibility, placement of students, and needed supports for successful placements, respectively. For the same measures, APE teachers reported involvement levels of 78.21 (*SD* = 32.22), 71.98 (*SD* = 38.89), 78.81 (*SD* = 33.93), and 77.42 (*SD* = 33.56).

Variable	*F*	*p*	partial η^2	*M** (*SD*)	*m** PE (*SD)*	*m** APE (*SD)*
involved in decisions to determine eligibility for special education	1.23	.27	.016	15.37 (24.60)	11.47 (22.06)	17.81 (25.98)
involved in decisions that...Determine how you will conduct a needs assessment for PE	20.63	.00	.214	63.36 (40.91)	39.60 (42.57)	78.21 (32.22)
involved in decisions that...Determine eligibility for APE service	30.39	.00	.286	53.60 (43.77)	24.20 (34.40)	71.98 (38.89)
involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	42.40	.00	.358	58.29 (43.65)	25.47 (37.16)	78.81 (33.93)
involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	32.30	.00	.298	59.29 (42.24)	30.30 (38.73)	77.42 (33.56)

Table 6. Rating of current involvement in decisions. Note: *a score of 100 indicates complete involvement.

Univariate tests revealed no statistical differences between groups regarding factors that were considered for LRE placement decisions. Among all teachers, the more influential contributing factors (100 rating indicated ‘greatly influential’ in LRE

implementation) were disability type (*M* = 61.46, *SD* = 36.63) and severity (*M* = 68.99, *SD* = 34.96), the IEP goals of the students (*M* = 66.58, *SD* = 37.53), and parents' wishes (*M* = 62.03, *SD* = 32.08). For a full list of the factors, see Table 7.

LRE Implementation Factor	*M** (*SD*)	*m** PE (*SD*)	*m** APE (*SD*)
Class size	49.79 (40.09)	48.87 (43.96)	50.38 (37.94)
Class location	36.47 (35.60)	31.50 (36.76)	39.58 (34.89)
Class duration	40.41 (36.01)	39.10 (34.58)	41.23 (37.22)
Effect on students without disabilities during class	35.32 (35.01)	36.73 (38.38)	34.44 (33.13)
Student disability type	61.46 (36.63)	63.40 (38.03)	60.25 (36.09)
Student disability severity	68.99 (34.96)	64.87 (38.31)	71.56 (32.86)
The wishes of a student with a disability	54.90 (35.20)	48.50 (37.02)	58.90 (33.80)
The wishes of the parents	62.03 (32.08)	64.90 (31.40)	60.23 (32.70)
The IEP goals of a student with a disability	66.58 (37.53)	62.97 (37.70)	68.83 (37.64)

Table 7. Rating of how influential factors were in considering placement. Note: *a score of 100 indicates "very influential".

The *Implementation of Least Restrictive Environment* subtheme revealed that, while most APE teachers had an understanding of how LRE decisions were being made in their district and had input, many PE teachers had little influence in, or knowledge of, the process. "I am not sure, it differs from school to school. A lot of these [LRE] decisions are being made by school administrators, parents and classroom teachers with little or no feedback from [PE teachers] or APE specialists" (PE teacher, survey). Emily explained that decision-making on LRE issues was outside her control. "That would be our…[special education] teacher [who makes the decisions]…They're in charge of all the SPED students' scheduling, and the SPED teachers, and the coursework for those

teachers, and the IEP meetings…The administrator just backs them up" (Emily, PE teacher, interview). Kayla sometimes did not understand how decisions were made and why certain students were placed in her class. "It's not the best environment for some kids…And I just feel like sometimes we're pushing them into that environment because it's least restrictive….They're just there. And I don't know that that's what's best for them" (Kayla, PE teacher, interview).

APE teachers stressed the importance of assessment and evaluation in the justification of student placement. Melody described how she implemented LRE decisions. "I do everything from the initial referrals…to the evaluation to the assessment, the observation of PE, to the growth…to writing the report, to presenting the report" (Melody, APE teacher, interview). Another APE teacher shared, "LRE is based off a thorough assessment and [is discussed] with parents and IEP team, as well as PE teacher" (APE teacher, survey). Kevin added, "It's all driven by data…[Teachers] feel that, 'Oh, just if I say something, it'll make change.' But with anything, you have to have the data to support why the [placement] decision is necessary" (Kevin, APE teacher, interview).

Many teachers even described inappropriate LRE practices. "[LRE] is determined based on the severity of the disability. In the school that I am currently working in we do not have adaptive physical education. Students with more severe disabilities are generally grouped together in certain classes" (PE teacher, survey). One APE teacher admitted that it was a struggle just to get his district to provide PE services to students with disabilities, let alone implement LRE:

> But we're right now just trying to ensure that all our students with disabilities have the same opportunity in regards to PE as their gen ed peers. And as far as

> [LRE]…now that we're kind of building a foundation for our students through specially designed PE, [we can begin to] determine [LRE]" (Leonard, APE teacher, interview).

A PE teacher shared a similar experience:

> Currently where I teach there is no APE class. ALL of our students are supposed to be mainstreamed in for PE…Right now some of our students do not come to PE. The noise, echo, and class size that they would attend with is not conducive to their learning. I know I have one student that doesn't come to PE because she is blind and in a wheelchair and the group that she would come with has almost 60 first graders in it. It would not be her LRE (PE teacher, survey).

Further, a PE teacher lamented, "At the school that I teach, for the past 10+ years we have had push-in special ed with ALL of my students mainstreamed for HPE. I have not had an APE class in more than 15 years" (PE teacher, survey).

Justin, an APE teacher, expressed concern over what he believed was an inappropriate placement for a student:

> Here's a prime example of something that I kind of ran into actually today when I was teaching. So I have a student. He's got significant developmental disabilities and he's blind. And they want him in the general physical education class, but due to behaviors, due to disability-related needs, things like that, he really shouldn't be in there. I mean, he's not affecting anybody else's education by being in there. But he's also not getting what he can out of it (Justin, APE teacher, interview).

Further, when asked to describe how LRE placement decisions are being implemented, another APE teacher simply stated, “They are not being implemented!” (APE teacher, survey).

Ultimately, some teachers, regardless to whether a student is placed in LRE, will strive to make the setting work. Craig shared, “I don’t know. I mean, I look at it as kids are kids. When they’re in your class, you find a way to adapt to them” (Craig, PE teacher, interview).

Aim 3: Self-assessment of alignment between implementation of LRE-related decisions and law’s intent, and barriers that influence those decisions. Aim 3 examined the teachers’ perceptions of how closely the implementation of LRE-related decisions matched IDEIA’s intent, and the barriers that influence those decisions. This aim’s research questions targeted the degree of alignment between special education law and: 1) PE/APE services, 2) individual education programs, and 3) LRE placement decisions. Further, this aim explored any barriers to making such decisions.

To what degree do teachers believe actual implementation of PE/APE services for students matches IDEIA’s intent? A univariate test showed no statistical difference between groups regarding teachers’ perceptions of how closely their schools are implementing PE/APE services to the law’s intent, F (1, 76) = .37, $p > .05$; partial η^2 = .01. Descriptive statistics of the total mean of teachers’ self-assessments (with a 100 rating being “complete alignment”) indicated a high degree of alignment (M = 77.95, SD = 23.97).

To what degree do teachers believe actual implementation of IEP for PE/APE matches IDEIA’s intent? A univariate test revealed no statistical difference between

groups regarding teachers' perceptions of how closely their schools are developing and implementing IEPs to the law's intent, F (1, 76) = .00, p > .05; partial η^2 = .00. Descriptive statistics of the total mean of teachers' self-assessments (with a 100 rating being "complete alignment") indicated a high degree of alignment (M = 77.18, SD = 28.94).

To what degree do teachers believe actual implementation of LRE placement decision-making matches IDEIA's intent? A univariate test showed no statistical difference between groups regarding teachers' perceptions of how closely their schools are implementing LRE to the law's intent, F (1, 76) = .00, p > .05; partial η^2 = .00. Descriptive statistics of the total mean of teachers' self-assessments (with a 100 rating being "complete alignment") indicated a fairly high degree of alignment (M = 69.99, SD = 26.78).

What are barriers to LRE decision-making and how do they influence PE/APE teachers? In an open response item on the survey, very few PE teachers (10.00%) and APE teachers (14.58%) explicitly stated that they had no barriers to LRE implementation in their teaching settings. Further, there was a statistically significant difference in perceived ability to overcome barriers to appropriately place students in LRE between PE and APE teachers, F (1, 76) = 7.62, p < .01; partial η^2 = .09. With five being able to completely overcome barriers (and zero being completely unable), APE teachers (m = 4.21, SD = .85) felt more able to do so than their PE counterparts (m = 3.63, SD = .96). While both PE and APE teachers tended to report modest ability to overcome barriers (m = 3.62 and m = 4.21, respectively), when asked directly to what extent barriers actually

prevented them from appropriately placing students, the teachers reported a total mean rating of only 62.78 (*SD* = 29.05), with 100 being "barriers never prevent".

Regarding barriers, one univariate test (out of six) examining lack of adequate adaptive equipment revealed significant differences between groups, F (1, 76) = 4.74, p < .05; partial η^2 = .06. With 100 being "resources completely adequate to ensure appropriate student placement", PE teachers (*m* = 55.50, *SD* = 29.99) rated that access to adaptive equipment was more of a barrier than APE teachers (*m* = 70.48, *SD* = 29.32). Among all teachers, the bigger barriers were staff knowledge on how to educate students in LRE (*M* = 62.46, *SD* = 29.22) and access to support staff (*M* = 63.76, *SD* = 27.30). The most adequate resource (i.e., smallest barrier) reported was communication and collaboration with other school staff (*M* = 74.36, *SD* = 27.14). Table 8 provides descriptive statistics for all the barriers.

LRE Barrier: Resource Adequacy	*M** (*SD*)	*m** PE (*SD*)	*m** APE (*SD*)
Access to support staff	63.76 (27.30)	60.80 (30.12)	65.60 (25.54)
Access to adaptive equipment	64.72 (30.28)	55.50 (29.99)	70.48 (29.32)
Access to facilities	64.06 (29.33)	58.87 (30.86)	67.31 (28.18)
Support from administrators	67.59 (31.02)	61.53 (28.99)	71.38 (31.93)
Communication and collaboration with other teachers and paraeducators	75.36 (27.14)	74.10 (25.95)	76.15 (28.11)
Knowledge among school personnel on how to educate students in LRE	62.46 (29.22)	64.70 (28.54)	61.06 (29.86)

Table 8. Rating of the degree to which barriers prevent appropriate placement in the LRE. Note: *a score of 100 indicates that resources are "completely adequate".

PE and APE teachers expanded on their *barriers to Least Restrictive Environment implementation* through the subthemes of *issues of resource allocation* and *demanding duties exacerbated by marginalization*.

Issues of resource allocation. Placing students into LRE was made more difficult for PE and APE teachers because of shared issues with general lack of resources. Due to budgetary concerns many teachers had to work with large class sizes, which affected the safety of placing a student with a disability into general PE. Kevin explained, "Funding is being cut exponentially across the country and so class sizes are getting larger and larger. So the ability to ensure that students are safe and they're getting the necessary supports…we're asking more teachers to do more with less" (Kevin, APE teacher, interview). Melody further critiqued class size. "Class size is a big one, especially at middle schools. There's 150 kids in the gym…It's not always safe when you've got basketballs flying. I've been hit in the head. My [student with a disability] has been hit in the head" (Melody, APE teacher, interview). A PE teacher shared:

> I currently have a student who does not have the physical and mental capacity to assist in her own safety with 60 other 1st/2nd graders running around. I want all students in my class but the current class sizes and grades levels may not be advisable in all cases even if it would be considered the LRE (PE teacher, survey).

Tighter budgets also influenced access to enough support staff to assist students in any potential placement. "Yeah. I would be lying if I didn't say that school staffing was an issue. It's an issue across the board. And we can't make placement determination based on staffing issues" (Laura, APE teacher, interview). Another APE teacher added, "We also have little funding for students who would benefit from a support staff to be

present within a PE class (In fact, one to one support is being phased out by district as it is considered too expensive)" (APE teacher, survey). One PE teacher noted that LRE could not be truly achieved because "some schools continue to put all SPED students in APE with no concern for LRE because it takes less staffing" (PE teacher, survey).

Scheduling also posed issues for teachers. "Physical educators can be put in a tough position when it comes to maintaining safety and class control if scheduling is not done properly by administration" (PE teacher, survey). Roselyn mentioned that there sometimes was no flexibility in when students could receive APE services, stating, "with the special ed teacher's schedule, they need their lunch period or they need their planning period, and so they need all the students to go at that time to your class" (Roselyn, APE teacher, interview). Emily stated that the schedule was dictating access to PE:

> So the program that we have now, the adapted class, they just kind of come and go to our classes that work with their schedule. So their daily schedule is very different. So let's just say on Tuesdays and Thursdays at 10 o'clock, they come over to the gym. And whatever class is in the gym, they just kind of go into that class with their assistants and they just participate with that class (Emily, PE teacher, interview).

Access to appropriate facilities and equipment were also seen as barriers to LRE. One APE teacher described teaching students in less than ideal areas. "Lack of facilities—sometimes we are in the lobby of a school because the custodian leaves lunch tables up so we can't use the lunchroom. The lobby of a school is not adequate" (APE teacher, survey). One PE teacher reported, "I do not have any equipment designated just

for adaptive or special needs students" and another one added, "Adaptive equipment would be helpful" (PE teachers, survey).

One APE teacher summed up the influence of barriers, saying, "We have no adaptive equipment, extremely large classes and a very small gym. We do the best we can to create LRE for our students but that does not always work" (APE teacher, survey).

Demanding duties exacerbated by marginalization. Both APE and PE teachers felt overwhelmed with job responsibilities, which were made worse by marginalization. Some APE teachers felt marginalized by the custodial practices and general unwillingness of the PE teachers to teach students appropriately, which made LRE placements more challenging. Justin explained:

> Because what I found lately, is that sometimes the teacher creates an environment that becomes more restrictive for that [students with disabilities] and makes that environment restricting not only for that student but also for all their students. Yesterday, I was in a class actually with this [student with a disability], and I sat there with her, listening to 15 minutes of instruction and then five minutes of kids messing around, and we had 10 minutes of activity time. Well, I only see this girl 30 minutes a week. I only physically worked with her 10 minutes [during class]. It was the general [PE] teacher…how do you go about training them like, "Well, this isn't good for any of our students. Not the general students. Not our students with disabilities." I could've gotten a lot more in a one-on-one setting with her (Justin, APE teacher, interview).

Kevin added:

> So I've gone to schools where I've worked with [PE] teachers to support [students with disabilities] because I'm there to support the student—that's my goal. But when a teacher is resistant to change and they're resistant to the work involved—because it's labor intensive. I mean it's a lot more time, especially if you have someone…rolling the ball out. They have low expectations for all their students, not just for the students with disabilities. So how do I change that and how do I change that mindset in that individual? (Kevin, APE teacher, interview).

Leonard explained that it was difficult to suggest general PE as the LRE when good PE did not exist first:

> I have seen a lot of roll out the ball programs as far as gen ed PE for middle school and high school, and it's really hard to see…and it's really hard to ensure least restrictive environment for some of our students when really PE's not happening (Leonard, APE teacher, interview).

Melody confronted a PE teacher who did not want to teach her students:

> And I've had a PE teacher look at me and say, "You know, I think they should just be in a special class. Why do they have to come in here?" And I said, "Because it's the law. You can't put them in a special class. If they can do the skills and they're successful and safe being in here, it's not at all appropriate to put them in a special class. You're depriving them of their rights" (Melody, APE teacher, interview).

On the other hand, PE teachers felt that their voices were being marginalized by not being included in decisions about LRE implementation. Kim explained:

> I need to be an integral part of the team that makes decisions on these students' success. And I feel that often, [IEP teams] forget that movement is essential to learning and that it is definitely related to all learning. So I feel that I am not being utilized for what I've been trained for. But on the other side of that sword, the other edge to that sword, is I am already so tapped out with all the responsibilities of not only teaching, but all of the special programs, morning duties, afternoon duties. I'm the safety committee chairperson (Kim, PE teacher, interview).

When asked if she wished that she were included in LRE-related decisions more, Emily responded:

> All the time, all the time. And it's very frustrating. Most of the students with disabilities, like I said, 95% of the time there's no issue. But it would just be nice if every nine weeks, their caseload manager would come and say, "Hey, let me just--" face-to-face, verbal. What we do is we just do these checklists, on a calendar literally, and if there is some accommodation that they feel like applies to PE, we check off on the date whether they were able to meet that accommodation in class or not (Emily, PE teacher, interview).

Kayla added:

> Sometimes it's a little frustrating because I see these kids from kindergarten or even from preschool on. But I never get any input on their IEP. And the APE teachers come in new every year. And they set these goals and they set everything up and then they leave. And then a new one comes in and just kind of follows what the last one did (Kayla, PE teacher, interview).

Further, a PE teacher stated, "It would be nice if the gen. ed. PE teachers had input about

inclusion of students in gen. ed. classes (maturity/behavior of gen. ed students; physicality of class)" (PE teacher, survey). Another PE teacher reported, "My only complaint is that often HPE is forgotten in the distribution of (IEP/LRE) information, and no assistants/aids come to HPE with the students so all accommodations fall on the HPE teacher" (PE teacher, survey).

CHAPTER 5

DISCUSSION

Chapter 5 was organized as a discussion of the major findings of the present study. First, the SCT was used to more broadly arrange the results. Second, the major findings were then interpreted using SCT and OST as guides. Third, implications of the results were presented. Fourth, the present study's limitations and recommendations were discussed. Finally, proposed strategies for teacher training and future research directions were provided.

To better understand the data, the results were organized using SCT's triadic reciprocal determinism model, which Bandura (2001) described as dynamic and multi-directional interactions between an individual, the environment, and behavior (see Figure 3; this figure also demonstrates how SCT and OST were meaningfully integrated and will be referred to throughout Chapter 5). Knowledge of special education law (i.e., personal factors) interacted with barriers to LRE implementation (i.e., environmental factors) and the actual implementation of LRE decisions (i.e., behavioral factors). Overall, the results indicated that knowledge and barriers were particularly influential to actual implementation of LRE, but teacher behavior could also influence barriers to implementation. The influences of these three factors are specifically discussed in this study's three most significance findings.

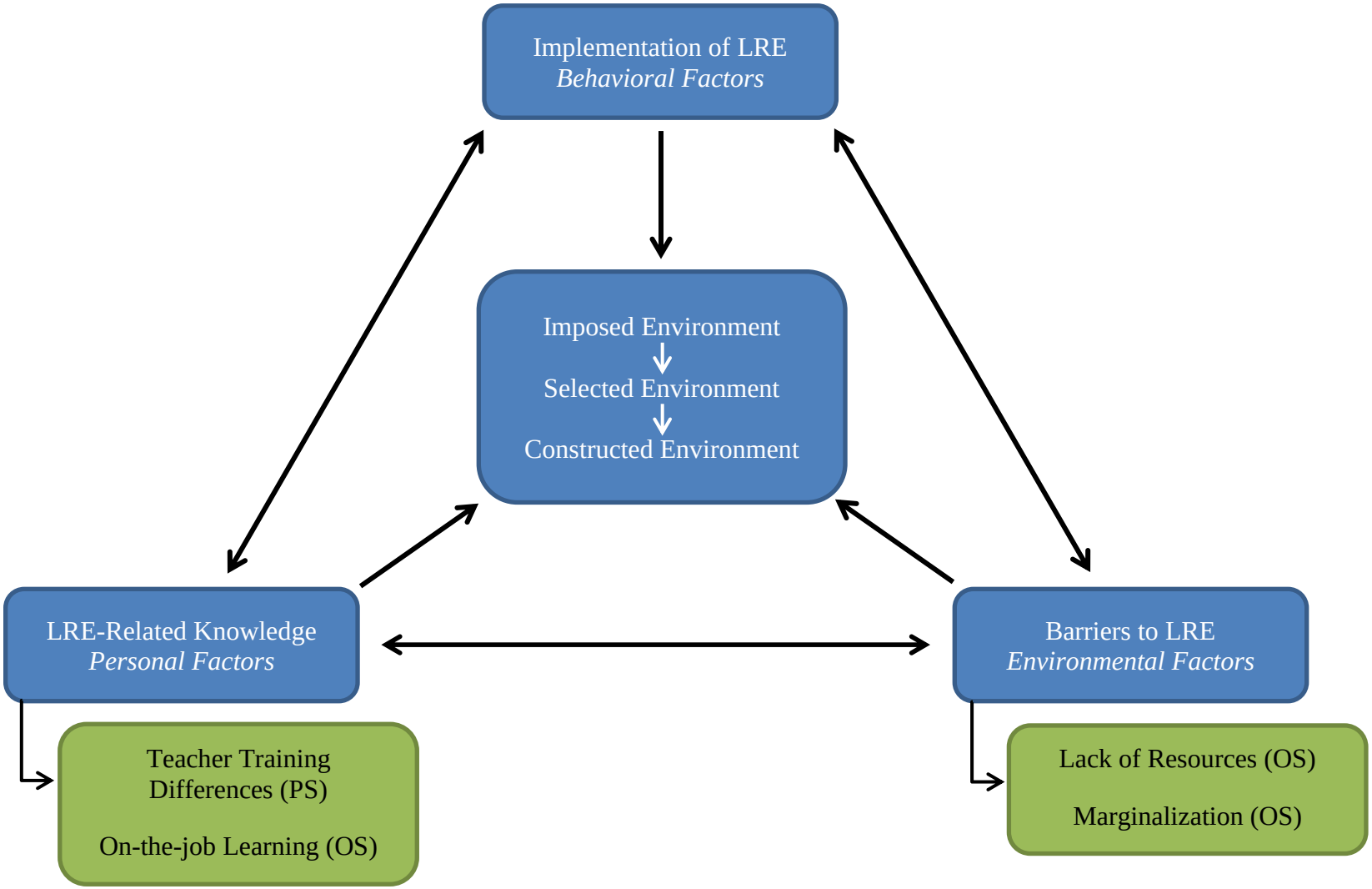

Figure 3. Model for understanding results through SCT and OST. Note: blue shading represents constructs derived from SCT while green shading represents concepts from OST; PS = professional socialization; OS = organizational socialization.

Major Finding 1: Discrepancy of LRE Knowledge

The first major finding was the stark differences in knowledge (personal factor; see Figure 3) between PE and APE teachers; APE teachers generally had more nuanced understandings of IDEIA's intent for LRE. This conclusion was highlighted by the notable discrepancy in how PE and APE teachers described their understandings of LRE law; APE teachers perceived themselves more knowledgeable, while the PE teachers generally perceived themselves less so. These perceptions were supported by their descriptions of LRE's intent through the interviews and the open-ended responses on the survey. PE teachers tended to conflate LRE with the philosophy of inclusion (which is not included in LRE's definition) and making modifications for all students, whereas the APE teachers were much more likely to expand on the LRE continuum of alternative placements—a notable part of the law.

The difference in knowledge is likely explainable, at least in part, by the lack of preparation that PE teachers receive during formal training (Hodge, Ammah, Casebolt, Lamaster, & O'Sullivan, 2004), especially since most PE participants reported taking only one APE-specific course. The present study's results also indicated that this course focused more heavily on modifications and adaptations than special education legislation, which is supported by past research (Piletic & Davis, 2010). Although APE teachers generally felt better prepared for LRE implementation by their training than their counterparts, several of the APE teachers quickly learned that their knowledge was not sufficient as they began their teaching careers. From an OST theoretical perspective, Park and Curtner-Smith (2018) found that, while preservice APE teachers completed 16 to 21 credit hours of APE-related coursework, much of the coursework focused on learning

about disabilities, modifications, and assessment and to "a lesser extent" disability law. In the present study, this helps explain why some APE teachers may have been forced to learn more about LRE on the job. Importantly, professional socialization of best practices was most effective in high quality APETE programs; low quality programs—ones with limited opportunities to engage with field experience and under poor supervision—tended to produce underprepared APE teachers (Park et al., 2018). Further, the importance of acquiring specialized APE expertise during professional socialization has been highlighted in recent research (Sato et al., 2016). Figure 3 demonstrates how professional socialization merges with SCT to better understand the results of the present study.

In the present study, both PE and APE teachers also indicated that they did not receive many opportunities to practice making LRE decisions during their fieldwork components of their teaching training. This likely influenced their knowledge of how to actually *implement* LRE—not just knowledge of the legislation itself. This is unfortunate because, while preservice teachers reported that field experience was the most important component of their teacher training (Park et al., 2018), it does not appear that they are able to put law into practice during this time.

Major Finding 2: Implementation of LRE

It is not surprising, given the differences in teacher training (and hence knowledge), that there were disparities in involvement levels in LRE implementation decision making (behavioral factor; see Figure 3) between PE and APE teachers. APE teachers were generally better equipped to describe how LRE was being implemented because of their increased roles with the development and implementation of the IEPs of students. The teachers reported that the biggest consideration for determining the

placement of students was disability severity, followed closely by the students' IEP goals and parents' wishes. These top considerations indicate that schools (and their PE/APE teachers) are trying to take a student-centered approach in implementing LRE, rather than resource-centered, which is as the law intended (Arnold & Dodge, 1994).

Major Finding 3: Barriers to LRE

While striving to implement LRE, the major barriers of inadequate resources and marginalization (environmental factors; see Figure 3) emerged, making LRE implementation more challenging for the PE and APE teachers. Borrowing from SCT (Bandura, 1986), these barriers may have been imposed environments (Bandura, 1999, 2001) upon the PE and APE teachers. The barriers often seemed to be imposed on the teachers—it was just the way it was, and they had to operate the best they could within the constraints of their teaching situations. APE teachers felt more able to overcome barriers than their counterparts, which suggests that they may be more successful in interpreting and reacting to these imposed factors than PE teachers. Bandura (1999, 2001) would refer to how these teachers interpret and react to such barriers as their selected environments. Moreover, Bandura would consider the PE and APE teachers' resulting behaviors to the inadequacy of resources and marginalization as their constructed environment (Bandura, 1999, 2001). The SCT would further suggest that this constructed environment was ultimately influenced by personal (i.e., knowledge of LRE), behavioral (i.e., implementation of LRE), and environmental factors (i.e., lack of resources, marginalization). Figure 3 shows how the three structures of environment fit in with SCT's triadic determinism for the present study.

Focusing on issues of resource inadequacy, many teachers noted instances where placement of students was challenging due to the lack of resources, a common problem otherwise noted in PE literature (Rainer, Cropley, Jarvis, & Griffiths, 2011). Specifically related to LRE placement, PE and APE teachers in the present study reported the challenges due to lack of support staff, adaptive equipment, appropriate facilities, and scheduling issues. The teachers described that inadequate access to these resources sometimes made students' placements more restrictive than they otherwise would be. It is noteworthy that PE teachers felt that lack of adaptive equipment was a bigger issue than APE teachers, most likely because such equipment is not as integral part of their inventory as it would be for APE teachers. Interestingly, availability of support staff, equipment, facilities, and scheduling conveniences were also reported in Project LRE/PE (Jansma et al., 1990), suggesting that not much progress has been made in the years since.

Regarding the second major barrier, both PE and APE teachers felt marginalized in their pursuit of LRE implementation. While OST literature has indicated that PE is generally a marginalized subject (Laureano et al., 2014; Lux & McCullick, 2011), APE has been suggested to be more marginalized than PE (Lieberman & Houston-Wilson, 2011). Notably, many APE teachers in the present study appeared frustrated, at times, with their PE teachers. APE teachers reported that some of their counterparts created an environment not conducive to LRE implementation through disorganized and inappropriate PE practices, as well as a lack of enthusiasm to teach students with disabilities. For example, if a PE teacher simply rolls out a ball and permits the students to participate as they may, then it becomes more difficult to justify that a student would

be able to achieve his or her IEP goals in that setting, as teaching and learning are likely not occurring for any students. It is possible that some of these issues stem from the PE teachers' lack of training (as noted earlier). Therefore, PE teachers may find it challenging to teach students with disabilities in their classrooms (Morley, Bailey, Tan, & Cooke, 2005), which may contribute to such exclusionary practices (Wilkinson, Harvey, Bloom, Joober, & Grizenko, 2013). Further, OST literature suggests that PE teachers and APE teachers may operate with different orientations (Park et al., 2018). Whereas, PE teachers tend to identify with a coaching (or non-teaching) orientation (Curtner-Smith, 2009), recent evidence suggests that APE teachers largely adhere to a teaching orientation (Park et al., 2018). This may account for some of marginalizing experiences of the APE teachers in the present study.

On the other side, results indicated that PE teachers were also marginalized through lack of invitation to meaningfully participate in the decisions that influenced teaching students with disabilities. This included decisions related to LRE placement and the development and implementation of IEPs. Since PE teachers often report feeling excluded from other staff in school (Stroot & Ko, 2006), it is perhaps not surprising that so many PE teachers responded that they were not included in IEP meetings or LRE decisions in the present study. Or, if they were included, it was just to be the general education teacher at the IEP meeting. Exacerbating this issue may be the presence of miscommunication and role ambiguity between the PE teachers, APE teacher (if one exists), paraeducators, and special education teachers (Bryan, McCubbin, & van der Mars, 2013). If the roles of all the stakeholders are not clearly defined and communicated, then there exist a possibilty that individuals do not get their voices heard.

In the present study, that appears to be the PE teachers. Figure 3 further demonstrates how organizational socialization merges with SCT to better understand the results of the present study.

Implications

The findings of this study provide insights that should be considered by faculty in PETE and APETE programs. First, it is time to revisit how teacher-training programs are designing coursework to meaningfully address the importance of compliance to special education law. This is inherently difficult given that most PE teachers only receive one APE-specific course with little opportunity to learn and apply LRE decision-making through coursework and field experience. However, if implementation of LRE as the law intends is the goal, it is likely that additional coursework, which specifically and thoroughly covers the complex nature of the law, should be required.

Further, this study's participants did not have much experience practicing being involved with LRE/IEP decisions during practicum or student teaching experiences; much of that came as on the job training. Confidentiality issues certainly played a role in this; however, how are preservice teachers supposed to become prepared to be active participants in these decision-making processes if they cannot practice under the supervision of qualified faculty and their cooperating teachers, as they might practice good behavior management strategies or making modifications during this formative time in their teacher training?

As noted earlier, the issues of marginalization of PE and APE teachers is not particularly groundbreaking, but it does present an opportunity for PETE and APETE programs to reemphasize the expectation that newly trained PE and APE teachers are

ready to advocate and fight for participation as an integral component of LRE-related decisions. It is important to note that this will likely be met with resistance given the overwhelming job responsibilities that many teachers are under.

Finally, the present study's results strongly support the idea that good PE must be in place before LRE can be implemented as the law intended (Horvat, Kelly, Block, & Croce, 2018). If a student cannot be successful in a regular PE setting because a PE program is unstructured and inappropriate (e.g., roll-out-the-ball mentality, PE teacher unwilling to teach students with disabilities), then that setting becomes a casualty of artificial LRE, meaning that student's LRE shifts to a more restrictive setting by default. This is obviously not in the interest of the student or supported by the intent of special education law.

Limitations

While every effort was taken to minimize potential limitations, the present study had several. The most common issue relayed to the principal investigator (PI) was that the survey length of approximately 25 minutes was just too long for teachers. This may have been compounded by the busy time of the academic year when the online survey was administered. To help increase sample size, data collection should be intentionally scheduled around major school events such as state standards testing or fitness testing, when teachers are generally busier. Ultimately, time commitment made participant recruitment more challenging to the point where the number of recruited PE teachers (n = 30) did not achieve the threshold set by an a priori power analysis (n = 42). Therefore, it is also recommended that the online survey be reduced by eliminating redundant components, such as the teaching scenarios (to be discussed in more detail later).

Another potential factor driving the lower recruitment of PE teachers was that the survey content might have threatened PE teachers (e.g., that they were not doing a good enough job or noncompliant with special education law). This reaction was anticipated by the PI prompting the inclusion of a very straightforward statement on the first page of the survey:

> The purpose of this survey is not to evaluate you or to pass judgment on your teaching, but rather to shed light on the issues regarding placing students with disabilities in the Least Restrictive Environment so that we may better inform those in our teacher training programs.

Yet, despite this effort, it is possible that some of the PE teachers who started but never finished the survey felt like they were being judged, which resulted in 132 total participants starting the survey but only 78 completing it. Perhaps greater efforts can be made in the introduction to clarify how important it is for higher education to learn how LRE is implemented in public schools, shifting the focus to how teacher training programs are "succeeding" or "failing" and not the teachers.

Another limitation was the delimitation of the target sample. While the APE teachers were recruited from the national CAPE database, the PE teachers were only recruited from the state of Virginia. Virginia has its own state rules and regulations as to the licensure process for PE teachers—rules that permit an individual to teach APE with just a PE license. Other states, like California and Louisiana, require state-issued APE endorsements to be considered qualified to teach APE. The diversity in the educational climates between states and regions of the U.S. should caution any broad generalizations of the results from the present study.

Despite these limitations, the rigor of the mixed methods design that was employed provided a much deeper understanding of the research aims and questions. This depth could not have been possible through simply using a quantitative or a qualitative approach. For example, nearly every single participant (99%) provided a usable (i.e., could be thematically coded) response on the five integral open-ended items on the survey, helping allay fears of missing data. Further, the importance of this design was highlighted by the inutility of the scenarios portion of the survey. The scenarios, which were designed to measure special education knowledge, did not yield additional substantive information beyond what the rest of the survey already had captured, perhaps due to the items' dichotomous nature. Collectively, given the length of the survey and time constraints, removing the scenarios is advised. However, the presence of qualitative data from the survey and interviews is what proved essential in examining the teachers' knowledge and behaviors (where the scenarios yielded little additional value). Ultimately, this study achieved its purpose in providing the first empirical data on current LRE implementation in the U.S. in 25 years.

Proposed Strategies for Higher Education

The PE/APE field should be concerned that nearly three decades after Jansma and Decker (1990) reported these LRE issues, these problems still have not been fully addressed. The following strategies are posited to teacher accreditation bodies (e.g., National Council for Accreditation of Teacher Education, Teacher Education Accreditation Council, Council for the Accreditation of Educator Preparation [CAEP]). Specifically, the Society of Health and Physical Educators (SHAPE)—the CAEP partner for PETE—and the National Consortium for Physical Education for Individuals with

Disabilities (NCPEID) for APETE, should be at the forefront of restarting the national conversation on LRE implementation. These governing bodies should require that all PETE and APETE programs provide a complete course which focuses specifically on special education law, with special emphasis on LRE. When APE-related coursework does cover such laws, too often it focuses on what the law is and not how to practically implement LRE out in the schools. By training teachers this way, programs risk these laws becoming "just another acronym" for candidates to remember on a test. Thus, this course should adequately cover IDEIA, while focusing on its important components that directly influence LRE placement decisions, which include IDEIA's intent and purpose of PE and IEPs. For example, teacher candidates could be required to participate in mock IEP meetings during class where they would have to collect and present data to justify APE services as well as decisions for appropriate LRE placement. The instructor and other candidates could take the roles of the parents, the administrator, and special education teacher during the meeting and could have predetermined stances which could challenge—and prepare—the teacher candidate for those future interactions. Further, it is essential that this course be taught by a qualified APE expert.

Beyond having a standalone class, SHAPE and NCPEID should press teacher training programs to ensure what is learned in such class can be meaningfully applied to the candidates' existing field experiences. For example, a program requirement could prompt candidates to complete an LRE project in which they must inquire about how placement decisions are made in their student teaching settings. This project may necessitate that the candidates interact with not only their cooperating teachers, but also with special educators and administrators, which would further provide a good learning

experience. Further, the candidates should be required to sit in on at least one IEP meeting to see how LRE decisions are made and then, as part of the project, report how they plan to advocate for their future students when it comes to this type of decision-making. Ultimately, through the coursework and the related field experience, PE and APE candidates should gain competencies that will allow them to understand what the law's purpose and intent are, and how to recognize and address the decisions that are not in the best interest of the student. Again, participating in decision-making regarding LRE and IEPs, should be an *expectation* for all candidates leaving their training programs.

Future Directions

This study was a first step toward a better understanding of how LRE is implemented, what PE and APE teachers know about it, and the barriers that prevent the field from improving its practice. As the only previous research in the area was decades old (i.e., Jansma et al., 1990), inquiry into how teachers are making LRE decisions and what those decisions look like in practice should be considered in its infancy. Future, more large-scaled investigations are needed. The scope should expand to PE and APE teachers (non-CAPE) in other states, with the methodology accounting for unique educational circumstances (e.g., licensing requirements, certification systems, etc.).

Research instruments in similar investigations should also capture additional information on whether an APE specialist is present in a school district. The presence of an APE specialist may have some bearing on the extent to which the PE teachers are included in important decision-making processes for students with disabilities. Moreover, since the scope of the present study was to gain a baseline understanding of PE and APE teachers' knowledge on LRE-related law, future research should capture more

comprehensively all pertinent knowledge (not just perception of knowledge) necessary to implement this facet of special education legislation. Thus, future efforts should create a valid and reliable measure that targets knowledge of LRE and IDEIA in this manner.

Ultimately, the field must come to terms with the following fundamental issues. First, and on a national scale, evidence that students are receiving free and appropriate PE/APE services in their LRE must be collected so that adherence to special education law can be ensured. Second, if evidence continues to show LRE implementation is faltering, LRE-related law must be revisited and reevaluated in its application to the present day educational climate. Otherwise put, the field must be able to answer the question, *is LRE law even right?* Finally, if the law does not meet the needs of the students, then what must be the next step forward?

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Appendix A

IRB Approval

In reply, please refer to: Project # 2018-0129-00

March 15, 2018

Wesley Wilson
Luke Kelly
Kinesiology
PO Box 400407

Dear Wesley Wilson and Luke Kelly:

The Institutional Review Board for the Social and Behavioral Sciences has approved your research project entitled "Least Restrictive Environment Implementation of Physical and Adapted Physical Educators" with a waiver of documentation of consent. You may proceed with this study.

This project # 2018-0129-00 has been approved for the period March 15, 2018 to March 14, 2019. If the study continues beyond the approval 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

Appendix B

Online Survey

Physical and Adapted Physical Educators' Thoughts on the Implementation of the Least Restrictive Environment

Dear Educator,

We understand that the full implementation of the Individuals with Disabilities Education (IDEA) Act is a work in progress in most schools. While great progress has been made in recent years, we are aware that there are still issues and challenges that many physical educators and adapted physical educators encounter. There is much to be done to fully implement the intentions of IDEA and its Least Restrictive Environment mandate, so we are trying to better understand the experiences of practitioners regarding the appropriate placements of students with disabilities during physical education and adapted physical education. The goal of this survey is to identify the current status and challenges of placing students with disabilities in their Least Restrictive Environment.

This online survey will take you approximately 25-30 minutes. All results will be aggregated and no names will be reported so we appreciate your willingness to answer as honestly and completely as possible. Please refrain from using outside resources while completing the survey. If you come across a term or concept that you don't know or understand, we encourage you to tell us as much as you do know in the response boxes as you go through the survey. The survey contains only five (5) open-ended questions on which we strongly encourage detailed responses. These are marked by **bolded, blue text**. We greatly appreciate your responses on these open-ended questions. We also provide some optional response boxes should you feel it necessary to provide additional comments on other questions.

The purpose of this survey is not to evaluate you or to pass judgment on your teaching, but rather to shed light on the issues regarding placing students with disabilities in the Least Restrictive Environment so that we may better inform those in our teacher training programs.

This study has been approved by the IRB at the University of Virginia (#.....).

[insert other IRB information here]

By clicking "I Agree" you are consenting to participate in this study.

I Agree

We may wish to follow up with a small percentage (about 10%) of participants for a short phone interview. If you are willing to be considered **please enter your preferred email address**. Your contact information will be stored securely and will only be used for this study's purposes.

Please confirm your email address.

Advance

How would you answer the following statement?

	Completely understand	Mostly understand	Somewhat understand	Mostly do not understand	Completely do not understand
I would rate my understanding of the purpose and intent of IDEA's Least Restrictive Environment provision as...	●	○	○	○	○

Describe your understanding of the Least Restrictive Environment (i.e., what is the law's intent regarding how a physical educator/adapted physical educator should determine the Least Restrictive Environment placement for a student with a disability?). **A note from the researchers: there are only a few open response questions in this survey, we greatly encourage your detailed response on this question.**

d

Go Back

Advance

Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential)

Not essential — Extremely essential

0 10 20 30 40 50 60 70 80 90 100

Knowing when specially designed PE (i.e., APE) is required and what it is

Knowing what must be included on IEP regarding APE

Knowing the definition of special education

Knowing the definition of PE

Knowing the eligibility criteria for special education

Knowing that PE is a direct service

Knowing what placement is a student's Least Restrictive Environment

Are there any other critical elements of IDEA regarding the appropriate placement of students with disabilities that you feel should be addressed in APE/PE? If yes, please describe.

Sequence the order (first to last) of decisions that a physical/adapted physical educator should generally use to determine the Least Restrictive Environment. Please drag and drop.

1. Determine eligibility for APE service
2. Determine in what placement the student will most satisfactorily achieve IEP goals for APE
3. Determine what supports will be needed for the placement to be successful in APE
4. Determine appropriate individual education program (IEP) goals for APE
5. Determine how you will conduct an APE needs assessment for PE
6. Determine the APE program best suited for the student's needs
7. Determine eligibility for special education

If you wish to explain/comment on your sequencing response above, please use the space below:

Go Back Advance

How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important)

Not important — Extremely important

0 10 20 30 40 50 60 70 80 90 100

Determine what supports will be needed for the placement to be successful in APE

Determine in what placement the student will most satisfactorily achieve IEP goals for APE

Determine eligibility for special education

Determine how you will conduct a needs assessment for PE

Determine eligibility for APE service

Determine appropriate individual education program (IEP) goals for APE

Go Back

Advance

Given all the time demands that you encounter in your job, rate your *current* involvement in... (0 = none, 100 = complete involvement).

No involvement — Complete Involvement
0 10 20 30 40 50 60 70 80 90 100

Determining appropriate individual education program (IEP) goals for APE

Determining what supports will be needed for the placement to be successful in APE

Determining eligibility for special education

Determining eligibility for APE service

Determining in what placement the student will most satisfactorily achieve IEP goals for APE

Determining how you will conduct a needs assessment for PE

Go Back Advance

Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation.

No influence — Greatly influences

0 10 20 30 40 50 60 70 80 90 100

Class size

Class location

Class duration

Effect on students WITHOUT disabilities during class

Student disability type

Student disability severity

The wishes of a student with a disability

The wishes of the parents

The IEP goals of a student with a disability

Please describe how Least Restrictive Environment placement decisions are being implemented where you teach. **A note from the researchers: there are only a few open response questions in this survey, we greatly encourage your detailed response on this question.**

To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?

No alignment Complete alignment
0 10 20 30 40 50 60 70 80 90 100

Please Use Slider

Go Back Advance

How would you answer the following statement?

	Completely understand	Mostly understand	Somewhat understand	Mostly do not understand	Completely do not understand
I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...	○	○	○	○	○

Which of the following best describes your understanding of IDEA's overarching purpose and intent of an IEP for a student with a disability, regarding PE.

To establish annual APE objectives and goals for the student, which are solely based on the general PE curriculum

To establish evidence that the student is being taught what is developmentally appropriate for his or her APE objectives and goals

To ensure that students are working on and achieving their APE program goals throughout their time in the public schools

To protect the school district from discriminating against students with disabilities in regards to free and appropriate PE

To establish annual APE objectives and goals for the student, which are based on the student's APE curriculum

If you wish to add your own response to the previous item, please do so below:

Please summarize how IEPs are developed and implemented in your district. **A note from the researchers: there are only a few open response questions in this survey, we greatly encourage your detailed response on this question.**

What best describes your role in the development and implementation of IEPs for your students with disabilities? (check all that apply)

- No role in developing IEPs
- No role in implementing IEPs
- Offer suggestions for IEP goals/writing IEP goals
- Justify most appropriate placement for which the student can achieve IEP goals
- Request additional support to help the student during class, when needed (e.g., support staff, different facilities/equipment etc.)
- Assess and collect data on the student's progress towards IEP goals
- Report on the student's progress during IEP meetings
- Attend IEP meetings

To what extent are the IEPs developed and implemented as the law intends in your teaching situation?

Not as the law intends — Completely as the law intends

0 10 20 30 40 50 60 70 80 90 100

Please Use Slider

Go Back Advance

How would you answer the following statement?

	Completely understand	Mostly understand	Somewhat understand	Mostly do not understand	Completely do not understand
I would rate my understanding of IDEA's definition of PE and its purpose as...	○	○	○	○	○

Which of the following is/are included in IDEA's intent and definition of PE? (check all that apply)

- To teach the area of cognitive development
- To develop the physical and motor fitness of the students
- To design an APE curriculum for students with disabilities that matches the general PE curriculum as closely as possible
- To teach the area of affective development
- To instruct students in a variety of sports and fundamental motor skills
- To specially design PE for students who require it

Which of the following best describes the PE that your **students with disabilities** typically receive in your teaching situation? (check all that apply)

- I teach the area of cognitive development
- I instruct students in a variety of sports and fundamental motor skills
- I specially design PE for students who require it
- I design an APE curriculum for students with disabilities that matches the general PE curriculum as closely as possible
- I teach the area of affective development
- I develop the physical and motor fitness of the students
- Other...(please provide your own explanation of the type of PE that your students with disabilities typically receive below)

If you selected "Other..." above, please provide your own explanation:

To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?

No alignment — Complete alignment

0 10 20 30 40 50 60 70 80 90 100

Please Use Slider

Go Back Advance

How would you answer the following statement?

	Completely able	Mostly able	Somewhat able	Mostly not able	Completely not able
I would rate my ability to overcome barriers (e.g., lack of support staff, adaptive equipment) to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...	○	○	○	○	○

What is your understanding of IDEA on how the availability (or lack thereof) of resources should affect the placement of students with disabilities in the Least Restrictive Environment?

School districts should never allow a lack of resources (e.g., support staff, adaptive equipment) to be a reason to exclude a student with disability from appropriate education in the LRE

School districts should include all students with disabilities in general education, regardless of the availability of resources

School districts can deem the acquisition of resources too financially burdensome and thus place a student with disability in a more restrictive environment

School districts can petition the state education department to receive the extra funding for the necessary resources to educate all students in the LRE

Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through...

Completely Inadequate 0 10 20 30 40 50 60 70 80 90 100 Completely Adequate

...access to support staff

...access to adaptive equipment

...access to facilities

...support from administrators

...communication and collaboration with other teachers and paraeducators

...knowledge among school personnel on how to educate students in LRE

To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?

Barriers always prevent LRE 0 10 20 30 40 50 60 70 80 90 100 Barriers never prevent LRE

Please Use Slider

Please describe how any barriers (if any) influence your Least Restrictive Environment placement decisions. **A note from the researchers: there are only a few open response questions in this survey, we greatly encourage your detailed response on this question.**

Go Back

Advance

Scenario #1

Tommy is a seventh grader with Duchenne muscular dystrophy who uses a motorized chair to move about the school. He receives special education through IDEA because he performs several grade levels below his same aged peers. Tommy does not like PE because he is not successful and so his parents have asked for him to be able to drop the subject. Since Tommy already receives weekly appointments with the district's physical therapist, the school agrees his participation in physical education may be dropped.

True/False. In this scenario, it is appropriate for the school to drop physical education from Tommy's education program.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

True/False. Physical education, specially design if necessary, must be provided to Tommy so it cannot be dropped.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

Go Back

Advance

Scenario #2

Gracie is a fourth grader with spastic cerebral palsy who independently uses crutches for mobility. She is very sociable and enjoys being with her peers at school and her peers love her too. Per her IEP, Gracie is fully involved in her general physical education class and tries to participate in each activity her PE teacher has the class do. The PE teacher works very hard to modify the activities so that Gracie feels like she is involved and participates in the class activities even though a lot of the skills she cannot perform correctly and will never be able to master.

True/False. Being fully involved in the general physical education program is the most appropriate placement for Gracie's needs.

- True
- False

If you feel that it is important to clarify/explain your previous response, please do so below:

True/False. Since Gracie is fully involved in general physical education, it is okay that all of her IEP goals for PE focus on social development, especially when she struggles with motor skill mastery.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

How is inclusion typically implemented in your teaching situation? **A note from the researchers: there are only a few open response questions in this survey, we greatly encourage your detailed response on this question.**

Go Back

Advance

Scenario #3

An elementary school PE teacher faces a difficult placement decision when it comes to Caleb, a new student in her school. Caleb has autism and is often prone to aggressive behaviors around his classmates. She is nervous about having Caleb participate in her general PE class even though her school has adopted a full inclusion policy. To make matters more pressing, Caleb's parents refuse to sign his IEP unless he is guaranteed participation in general PE with his typically developing peers.

True/False. Since full inclusion is the school's policy, Caleb must be placed in general PE and provided with support staff that can manage his behavior.

- True
- False

If you feel that it is important to clarify/explain your previous response, please do so below:

True/False. If Caleb's parents refused to sign the IEP because his PE teacher recommended placing Caleb in a one-on-one setting for PE, the IEP cannot be legally implemented until the situation is resolved.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

Go Back

Advance

Scenario #4

Antonio is a second grader with Down syndrome, causing him to have a severe intellectual disability. After evaluating him against the general PE curriculum, the PE teacher and APE specialist conclude that, for Antonio to achieve his IEP goals, he requires specially designed PE (i.e., APE). They decide to place Antonio in a self-contained APE class.

True/False. The IEP process that the PE teacher and APE specialist followed does **NOT** align with IDEA's intent and purpose.

- **True**
- False

If you feel that it is important to clarify/explain your previous response, please do so below:

True/False. Since Antonio qualifies for APE, the IEP committee is only required to state in his IEP that he is receiving APE rather than general PE.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

Go Back

Advance

Scenario #5

Ninth grader Tamara acquired a traumatic brain injury as a child, leaving her with a severe intellectual disability. Tamara is very sociable and is eager to learn the lifetime physical activity skills that her APE and general PE teachers helped compose for her. Her IEP committee deems that Tamara should be able to achieve her IEP goals most satisfactorily in a general physical education setting, provided that she has a one-on-one paraeducator with her during class. However, the funding is not in place to hire another support staff and a current paraeducator cannot be freed up to join Tamara for PE. Instead, the committee decides the next best thing is to place her in the self-contained APE class with the APE teacher.

True/False. In this scenario, Tamara's Least Restrictive Environment in which she can satisfactorily work on and achieve her IEP goals is in the self-contained APE class.

- True
- False

If you feel that it is important to clarify/explain your previous response, please do so below:

True/False. In this scenario, it is **NOT** okay for the school to choose a placement based on what is available and affordable rather than what would be most appropriate for Tamara.

True

False

If you feel that it is important to clarify/explain your previous response, please do so below:

Go Back

Advance

Gender:

Male

Female

With what ethnicity do you identify most?

White

Hispanic or Latino

African American

Native American

Asian/Pacific Islander

What is your age?

20 27 34 41 48 55 62 69 76 83 90

Please Use Slider

What are your Degree(s) & concentration(s)?

	Concentration						
	N/A	physical education	adapted physical education	kinesiology-other	special education	psychology	Other
Bachelors	☐	☐	☐	☐	☐	☐	☐
Masters	☐	☐	☐	☐	☐	☐	☐
Ph.D. or Ed.D.	☐	☐	☐	☐	☐	☐	☐

What levels do you teach (check all that apply)?

- Pre-K
- Elementary School
- Middle School
- High School

Go Back Advance

In what state do you currently teach?

AL	LA	OH
AK	ME	OK
AZ	MD	OR
AR	MA	PA
CA	MI	RI
CO	MN	SC
CT	MS	SD
DE	MO	TN
FL	MT	TX
GA	NE	UT
HI	NV	VT

ID	NH	VA
IL	NJ	WA
IN	NM	WV
IA	NY	WI
KS	NC	WY
KY	ND	Washington, D.C.

Go Back Advance

Have you obtained a CAPE certification (i.e., passed the Adapted Physical Education National Standards exam)?

- Yes
- No

Are you a CAPE in a state that already has state certification in APE?

- Yes
- No
- Unsure

Does your state have:

a state certification required for teaching APE (e.g., an endorsement)

a certification system that allows an individual with regular PE teaching license to also teach APE

a certification system that requires Adapted Physical Education National Standards (APENS) certification to teach APE

Years of PE/APE taught:

0 4 8 13 17 21 25 29 33 38 42 46 50

Please Use Slider

Go Back Advance

Placements in which you teach students with disabilities (check all that apply):

- General physical education (GPE)
- GPE with support service assistance
- Part GPE and part APE in self-contained placement
- Full-time APE in self-contained in school
- Part-time APE in one-on-one placement in school
- Full-time APE in one-on-one placement in school
- Full-time APE in special schools (e.g., schools for the blind)
- Full-time APE in self-contained out of school (e.g., hospital settings)

Approximately, how many students with disabilities do you directly teach this academic year? This is instruction provided solely by you (i.e., you are the student's primary physical education teacher and you actually provide the instruction given).

0 20 40 60 80 100 120 140 160 180 200

Students with disabilities you directly teach

Approximately, how many students with disabilities do you indirectly serve this academic year? Indirect services could be labeled as itinerant or consultant. Indirect services imply that you provide information, assessment, or other assistance but do not teach the children directly. The actual physical education services are taught by another person.

0 20 40 60 80 100 120 140 160 180 200

Students with disabilities you indirectly serve

Go Back Advance

What decisions are you routinely involved in and how often?

	How often?				
	Not involved	1-2 times per year	3-4 times per year	5-6 times per year	More than 6 times
Deciding eligibility for special education services	○	○	○	○	○
Creating APE curriculum/program	○	○	○	○	○
Deciding if students qualify for APE	○	○	○	○	○
Drafting the IEP goals for APE	○	○	○	○	○
Recommending and justifying the appropriate placement to meet IEP objectives for APE	○	○	○	○	○

How competent do you feel in those roles?

	Extremely competent	Somewhat competent	Neither competent nor incompetent	Somewhat incompetent	Extremely incompetent
Creating APE curriculum/program	○	○	○	○	○
Deciding eligibility for special education services	○	○	○	○	○
Recommending and justifying the appropriate the placement to meet IEP objectives	○	○	○	○	○
Drafting the IEP goals for APE	○	○	○	○	○
Deciding if students qualify for APE	○	○	○	○	○

Go Back Advance

On average, how much time in General PE is allotted for your students **without** disabilities? Use the sliders only as they apply to your teaching situation and move the slider to '0' on those that do not. For example, if you are an APE teacher and only teach students with disabilities then place all sliders to '0'.

Number of Minutes per Week

0 30 60 90 120 150 180 210 240 270 300

Pre-K

Elementary

Middle

High

For your students **with** disabilities, please indicate how much total GPE/APE instructional time the following example students would probably receive in your teaching situation.

Number of Minutes per Week

0 30 60 90 120 150 180 210 240 270 300

Student with severe spastic cerebral palsy affecting all four limbs and a moderate intellectual disability; requires a power chair to move

Student with severe autism spectrum disorder; is flight prone and disruptive in class

Student with a visual impairment; completely blind

Go Back Advance

Appendix C

Social Cognitive Theory Application to Survey Items

Survey Development	
SCT factor	Survey Item
personal	How would you answer the following statement? - I would rate my understanding of the purpose and intent of IDEA's Least Restrictive Environment provision as...
personal	Describe your understanding of the Least Restrictive Environment (i.e., what is the law's intent regarding how a physical educator/adapted physical educator should determine the Least Restrictive Environment placement for a student with a disability?).
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing the definition of special education
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing the eligibility criteria for special education
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing that PE is a direct service
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing the definition of PE
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing when specially designed PE (i.e., APE) is required and what it is
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing what must be included on IEP regarding APE
personal	Rate how essential the following factors are to the placement decisions of students with disabilities, regarding physical education. (0 = not essential; 100 = extremely essential) - Knowing what placement is a student's Least Restrictive Environment

personal	Are there any other critical elements of IDEA regarding the appropriate placement of students with disabilities that you feel should be addressed in APE/PE? If yes, please describe.
personal	Sequence the order (first to last) of decisions that a physical/adapted physical educator should generally use to determine the Least Restrictive Environment.
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine eligibility for special education
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine how you will conduct a needs assessment for PE
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine eligibility for APE service
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine appropriate individual education program (IEP) goals for APE
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine in what placement the student will most satisfactorily achieve IEP goals for APE
personal	How important is it for you to be involved in decisions that... (0 = not important, 100 = extremely important) - Determine what supports will be needed for the placement to be successful in APE
behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining eligibility for special education
behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining how you will conduct a needs assessment for PE
behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining eligibility for APE service
behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining appropriate individual education program (IEP) goals for APE
behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining in what placement the student will most satisfactorily achieve IEP goals for APE

behavioral	Given all the time demands that you encounter in your job, rate your current involvement in... (0 = none, 100 = complete involvement). - Determining what supports will be needed for the placement to be successful in APE
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents
environmental	Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability
behavioral	Please describe how Least Restrictive Environment placement decisions are being implemented where you teach.
environmental	To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment? - Please Use Slider
personal	How would you answer the following statement? - I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...
personal	Which of the following best describes your understanding of IDEA's overarching purpose and intent of an IEP for a student with a disability, regarding PE.

personal	If you wish to add your own response to the previous item, please do so below:
behavioral	Please summarize how IEPs are developed and implemented in your district.
behavioral	What best describes your role in the development and implementation of IEPs for your students with disabilities? (check all that apply)
environmental	To what extent are the IEPs developed and implemented as the law intends in your teaching situation? - Please Use Slider
personal	How would you answer the following statement? - I would rate my understanding of IDEA's definition of PE and its purpose as...
personal	Which of the following is/are included in IDEA's intent and definition of PE? (check all that apply)
behavioral	Which of the following best describes the PE that your students with disabilities typically receive in your teaching situation? (check all that apply)
environmental	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE? - Please Use Slider
environmental	How would you answer the following statement? - I would rate my ability to overcome barriers (e.g., lack of support staff, adaptive equipment) to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...
personal	What is your understanding of IDEA on how the availability (or lack thereof) of resources should affect the placement of students with disabilities in the Least Restrictive Environment?
environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...access to support staff
environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...access to adaptive equipment
environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...access to facilities
environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...support from administrators
environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...communication and collaboration with other teachers and paraeducators

environmental	Rate the extent to which you have adequate resources to meet the needs of students with disabilities in the Least Restrictive Environment through... - ...knowledge among school personnel on how to educate students in LRE
environmental	To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment? - Please Use Slider
environmental	Please describe how any barriers (if any) influence your Least Restrictive Environment placement decisions.

Appendix D

Interview Script

1. Acculturation (multiple prompts allowed)

- Growing up, describe your experiences with PE.
    - Did you enjoy PE and sport?
    - What were your PE teachers like?
- Growing up, describe your experiences/interactions with individuals with disabilities.
    - What were your experiences inside of school with IWD? Outside?
    - Were SWD integrated into your general ed classes (and PE)? If so, how were they integrated?
        - Describe how your PE teacher integrated SWD in your PE classes.
        - Did it seem that SWD were successfully placed in that setting?
    - What was the school culture towards SWD?
- How do you believe that your experiences with SWD in PE (during your formative years) influenced your perspective about SWD in PE going into your formal teacher training program?
- Do you have anything else you would like to add?

2. Professional Socialization (multiple prompts allowed)

- Describe the professors (lecturers) who taught you to teach PE during you're A/PETE program.
- Were you taught by professors (lecturers) who specialized in teacher education/teacher training?
- If any, describe your APE training during your time in your A/PETE program.
    - Describe your professors who taught your APE class(es)
- Describe any APE classes which you took during your PETE.
- Describe any internships, teaching practices, or practicum experiences with students with disabilities (SWD) in which you participated during your PETE training. Were these supervised by the professors that taught your APE coursework?
- As you went through you're A/PETE training, describe the emphasis that was placed on LRE of SWD.
    - Describe how often you were present with LRE placement issues in your field experience (e.g., internships, teaching practices, practica etc.)
    - Describe how well prepared you felt leaving the program regarding teaching SWD
    - Describe how well prepared you felt implementing special education law (LRE) to help place SWD in their least restrictive environment in PE.
- When you completed your PETE what kind of position were looking for and what were your goals as a teacher?
- How did your time in formal teacher training influence your understanding of how to best educate SWD in their LRE?
- Do you have anything else you would like to add?

3. **General Organizational Socialization** (multiple prompts allowed)
    - Describe the school in which you teach. How many pupils attend the school and what are their backgrounds? How many SWD are at your school?
    - Describe the school's PE Department. How many teachers are there in the department? What are their approximate ages? Approximately how long have they been at the school? What kind of facilities and equipment do you have? What are the department's main goals?
    - Describe how your school designs A/PE curricula
    - How would you describe the concept of LRE, a component of special education legislation?
    - How is LRE being implemented in your particular teaching situation?
    - Who makes the decisions on how SWD are placed in LRE for A/PE?
        - How involved are you in that decision process?
        - How confident do you feel in making those types of placement decisions?
    - Describe your involvement within the IEP team of your SWD.
        - How included do you feel to share your content expertise?
        - Describe your relationship with the other PE/APE teachers that may also be included in the IEP team.
    - What are barriers that exist that hinder the appropriate placement of SWD to receive their A/PE services?
        - Describe the level of support you receive from administration to appropriately place SWD in LRE.
        - Describe the level of support from special education teachers and paraeducators.
        - Do you feel like you have adequate equipment and facilities to teach SWD in the LRE?
    - Generally speaking, how do you feel about working with SWD in your teaching situation?
        - Do you feel adequately prepared to teach and assess SWD?
        - To what extent do you feel like finding the LRE for your SWD part of your job description?
    - How has you experience teaching in the schools shaped the way you view issues with SWD in A/PE?
    - Do you have anything else you would like to add?

4. **Other** (multiple prompts allowed)
    - Tell me a story that you think best exemplifies your experiences working with SWD in A/PE.
    - Is there anything else you want to tell me about your experiences with the placement of SWD in their LRE for A/PE?

Appendix E

Thematic Structure

ACCULTURATION

Traditional mechanisms for recruitment into teacher training:

- *Enjoyment of physical activity, physical education, and sports*. Participants shared their affinity towards physical activity, PE, and sports as they grew up. They described themselves as competent in these areas and that their success was a contributing factor to wanting to teach PE/APE.
- *Socializing agents (PE teachers/coaches/parents/siblings)*. Participants described the importance of their PE teachers/coaches, and family members as integral to decisions to enter teacher training.

Experiences with disability:

- *Interactions with individuals with disabilities.* These interactions occurred both inside and outside of grade school, and sometimes were delayed to participants' undergraduate experience and even into the workforce (as a general lack of integration of SWD in general education was noted). Some participants, especially the APE teachers, noted more interactions with IWD than the PE teachers. Includes participants discussing the school culture towards disability growing up.
- *Personal experience with disability*. Some participants described their own diagnoses of disabilities as an important factor for how they view teaching students with disabilities now.

PROFESSIONAL SOCIALIZATION

Importance of teacher training:

- *Discrepancy in coursework emphasis*. APE teachers had notably completed more APE coursework than their counterparts. Whereas, the PE teachers generally described their one APE class they took as learning about modifications, the APE teachers recalled learning about assessment, teaching strategies, and special education legislation. However, a few teachers recounted that they did not truly understand LRE until spending time in the workforce. Some PE teachers noted that their PETE programs tended to focus on sport development and coaching. Often, both groups mentioned that the coursework wasn't enough to prepare them to make LRE decisions.
- *APE teachers received more APE practica, still lacked practice with LRE decision-making*. The participants generally did not get to participate in the LRE decision-making process during their field experience. Some participants cited reasons of confidentiality (could not attend IEP meetings etc.). Often, both groups mentioned that the field experience wasn't enough to prepare them to make LRE decisions.

ORGANIZATIONAL SOCIALIZATION

Varying degrees of understanding of special education legislation:

- *Multiple interpretations of Least Restrictive Environment*. Variations in understanding of LRE existed within groups (to a smaller extent) and between groups (to a larger extent). Generally, APE teachers described the definition and intent of LRE more accurately than PE teachers. At times, APE teachers knew what LRE was but admitted that they struggled with its implementation due to barriers. Some PE teachers (and a few APE teachers) seemed to conflate the idea of inclusion with LRE, and a few PE teachers explicitly stated they had no idea what LRE was.
- *Multiple interpretations of the purpose and intent of IEPs*. APE teachers generally demonstrated a more nuanced understanding of the IEP process.

Implementation of Least Restrictive Environment, IEPs, and PE services:

- *Implementation of Least Restrictive Environment*. While most APE teachers had understanding of how LRE decisions were being made in their district and had input, many PE teachers had little influence in the process. Some PE teachers admitted that they had no idea of how LRE was being implemented. The importance of data collection and other considerations to justify placement are included in this subtheme. Several participants simply said that if the students are in their class, they'd just make it work. There was wide variation in implementation of LRE. Several teachers admit that some SWD don't receive PE at all.
- *Development and implementation of IEPs*. There was a stark contrast between the involvement of APE and PE teachers in the IEP process. Many PE teachers were not involved in IEP process and said that they just were asked to implement the goals (that the PTs, OTs, or special education staff created). Significant variation on how IEPs are implemented.
- *Wide variation in the PE/APE services rendered to students with disabilities*. APE and PE teachers indicated that their instruction to SWD encompassed content such as motor skill development, affective development, fitness development, and cognitive development (with numerous mixes and matches). Includes the diversity of placements in which the APE teachers found themselves teaching SWD. APE teachers generally had a more nuanced understanding of the services SWD than PE teachers.

Barriers to Least Restrictive Environment implementation:

- *Issues of Resource Allocation*. PE and APE teachers described many common issues related to placing SWD in LRE including general lack of funding, class size, scheduling, inadequate facilities/equipment, lack of support staff. Lack support staff, class size, and appropriate equipment were also raised as a concern for student safety. Some APE teachers admitted that lack of resources was part of the deal and that they just had to find a way to make it work. Includes desire for more APE training.

- *Demanding duties exacerbated by marginalization*. Both APE and PE teachers felt overwhelmed with job responsibilities. Some APE teachers were particularly critical of the custodial practices and general unwillingness of the PE teachers and support staff to teach SWD appropriately, which made LRE placements more challenging. Whereas, several PE teachers felt that, through lack of collaboration, their voices were being marginalized by not being included in these decisions. This subtheme may also include issues related to administrators and parents.

Appendix F

SPSS Output

General Linear Model

Between-Subjects Factors

		N
1 = PE teacher; 2=CAPE	1.00	30
	2.00	48

Descriptive Statistics

	1 = PE teacher; 2=CAPE	Mean	Std. Deviation	N
Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	1.00	3.7000	.83666	30
	2.00	4.4792	.58308	48
	Total	4.1795	.78531	78
Rate how essential--Knowing the definition of special education	1.00	77.3667	22.89780	30
	2.00	80.7708	24.40199	48
	Total	79.4615	23.74250	78
Rate--Knowing the eligibility criteria for special education	1.00	79.3667	25.34110	30
	2.00	81.7292	21.73999	48
	Total	80.8205	23.05822	78
PE: Rate--Knowing that PE is a direct service	1.00	83.1333	19.89755	30
	2.00	81.9375	28.33718	48
	Total	82.3974	25.29018	78
PE: Rate--Knowing the definition of PE	1.00	78.4333	25.24321	30
	2.00	82.4167	22.59997	48
	Total	80.8846	23.57028	78
PE: Rate--Knowing when specially designed PE (i.e.,	1.00	91.1333	15.30322	30
	2.00	92.4375	11.73811	48

APE) is required and what it is	Total	91.9359	13.14192	78
PE: Rate--Knowing what must be included on IEP regarding APE	1.00	85.6000	21.88938	30
	2.00	90.4792	15.21196	48
	Total	88.6026	18.09451	78
PE: Rate--Knowing what placement is a student's Least Restrictive Environment	1.00	87.0333	19.76497	30
	2.00	92.2917	17.09667	48
	Total	90.2692	18.22562	78
PE: LRE sequencing decisions	1.00	1.4667	.72643	30
	2.00	1.1786	.64193	48
	Total	1.2894	.68569	78
PE: involved in decisions that...Determine eligibility for special education	1.00	39.4000	38.49998	30
	2.00	48.9583	34.98812	48
	Total	45.2821	36.43314	78
PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	1.00	83.2667	21.45393	30
	2.00	92.9792	13.94593	48
	Total	89.2436	17.73923	78
PE: involved in decisions that...Determine eligibility for APE service	1.00	69.6333	32.02960	30
	2.00	87.6667	24.10556	48
	Total	80.7308	28.61871	78
PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	1.00	77.3000	29.74623	30
	2.00	95.8750	9.27964	48
	Total	88.7308	21.64571	78
PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	1.00	84.0000	21.48777	30
	2.00	90.1667	20.29394	48
	Total	87.7949	20.84224	78
PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	1.00	84.8000	22.95483	30
	2.00	90.5625	17.20701	48
	Total	88.3462	19.67583	78
PE: current involvement in...Determining eligibility	1.00	11.4667	22.06063	30
	2.00	17.8125	25.98417	48

for special education	Total	15.3718	24.59813	78
PE: current involvement in...Determining how you will conduct a needs assessment for PE	1.00	39.6000	42.57375	30
	2.00	78.2083	32.22458	48
	Total	63.3590	40.91295	78
PE: current involvement in...Determining eligibility for APE service	1.00	24.2000	34.40269	30
	2.00	71.9792	38.88745	48
	Total	53.6026	43.77372	78
PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	1.00	30.1333	39.36630	30
	2.00	75.2083	39.30024	48
	Total	57.8718	44.87251	78
PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	1.00	25.4667	37.16110	30
	2.00	78.8125	33.93464	48
	Total	58.2949	43.64976	78
PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	1.00	30.3000	38.72730	30
	2.00	77.4167	33.55962	48
	Total	59.2949	42.24422	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	1.00	48.8667	43.95902	30
	2.00	50.3750	37.94208	48
	Total	49.7949	40.08801	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	1.00	31.5000	36.75619	30
	2.00	39.5833	34.89122	48
	Total	36.4744	35.60305	78
PE: Rate the extent to which the following factors	1.00	39.1000	34.57660	30
	2.00	41.2292	37.21601	48

influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	Total	40.4103	36.01062	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	1.00	36.7333	38.37648	30
	2.00	34.4375	33.12832	48
	Total	35.3205	35.01187	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	1.00	63.4000	38.02504	30
	2.00	60.2500	36.08766	48
	Total	61.4615	36.63144	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	1.00	64.8667	38.30615	30
	2.00	71.5625	32.85552	48
	Total	68.9872	34.96139	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	1.00	48.5000	37.01700	30
	2.00	58.8958	33.79616	48
	Total	54.8974	35.20168	78
PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	1.00	64.9000	31.39882	30
	2.00	60.2292	32.69605	48
	Total	62.0256	32.07903	78
PE: Rate the extent to which the following factors	1.00	62.9667	37.70346	30
	2.00	68.8333	37.64127	48

influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	Total	66.5769	37.52974	78
PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	1.00	69.7333	25.42865	30
	2.00	70.1458	27.85600	48
	Total	69.9872	26.78073	78
PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	1.00	3.9333	.78492	30
	2.00	4.5625	.64926	48
	Total	4.3205	.76436	78
PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	1.00	77.4000	25.52024	30
	2.00	77.0417	31.15367	48
	Total	77.1795	28.94363	78
PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	1.00	3.7000	.83666	30
	2.00	4.3750	.63998	48
	Total	4.1154	.78923	78
Actual Understanding of PE def and purpose	1.00	2.2667	1.20153	30
	2.00	2.6458	1.06170	48
	Total	2.5000	1.12527	78
To what extent does the PE that your students with	1.00	75.8667	21.03812	30
	2.00	79.2500	25.76448	48

disabilities receive align with IDEA's definition and intent of PE?	Total	77.9487	23.97125	78
PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	1.00	3.6333	.96431	30
	2.00	4.2083	.84949	48
	Total	3.9872	.93272	78
PE: Rate the extent to which you have adequate...access to support staff	1.00	60.8000	30.11862	30
	2.00	65.6042	25.54324	48
	Total	63.7564	27.30263	78
PE: Rate the extent to which you have adequate...access to adaptive equipment	1.00	55.5000	29.99167	30
	2.00	70.4792	29.31559	48
	Total	64.7179	30.28432	78
PE: Rate the extent to which you have adequate...access to facilities	1.00	58.8667	30.86426	30
	2.00	67.3125	28.17812	48
	Total	64.0641	29.33476	78
PE: Rate the extent to which you have adequate...support from administrators	1.00	61.5333	28.99433	30
	2.00	71.3750	31.92586	48
	Total	67.5897	31.01589	78
PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	1.00	74.1000	25.94869	30
	2.00	76.1458	28.10617	48
	Total	75.3590	27.14367	78
PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	1.00	64.7000	28.53812	30
	2.00	61.0625	29.85526	48
	Total	62.4615	29.22270	78

PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	1.00	63.1667	26.83164	30
	2.00	62.5417	30.63440	48
	Total	62.7821	29.05286	78

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.996	187.441[b]	44.000	33	.000	.996
	Wilks' Lambda	.004	187.441[b]	44.000	33	.000	.996
	Hotelling's Trace	249.921	187.441[b]	44.000	33	.000	.996
	Roy's Largest Root	249.921	187.441[b]	44.000	33	.000	.996
group	Pillai's Trace	.776	2.600[b]	44.000	33	.003	.776
	Wilks' Lambda	.224	2.600[b]	44.000	33	.003	.776
	Hotelling's Trace	3.467	2.600[b]	44.000	33	.003	.776
	Roy's Largest Root	3.467	2.600[b]	44.000	33	.003	.776

Multivariate Tests[a]

Effect		Noncent. Parameter	Observed Power[c]
Intercept	Pillai's Trace	8247.385	1.000
	Wilks' Lambda	8247.385	1.000
	Hotelling's Trace	8247.385	1.000
	Roy's Largest Root	8247.385	1.000
group	Pillai's Trace	114.397	.996
	Wilks' Lambda	114.397	.996
	Hotelling's Trace	114.397	.996
	Roy's Largest Root	114.397	.996

a. Design: Intercept + group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type 3 SS	df	Mean Square	F	Sig.	Part η^2	Obs. Pow.
Correct. Model	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	11.208[a]	1	11.208	23.479	.000	.236	.998
	Rate how essential--Knowing the definition of special education	213.939[b]	1	213.939	.376	.541	.005	.093
	Rate--Knowing the eligibility criteria for special education	103.041[c]	1	103.041	.192	.663	.003	.072
	PE: Rate--Knowing that PE is a direct service	26.400[d]	1	26.400	.041	.841	.001	.055
	PE: Rate--Knowing the definition of PE	292.928[e]	1	292.928	.524	.471	.007	.110
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	31.400[f]	1	31.400	.180	.673	.002	.070
	PE: Rate--Knowing what must be included on IEP regarding APE	439.500[g]	1	439.500	1.348	.249	.017	.209

b. Exact statistic

c. Computed using alpha =

	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	510.463[h]	1	510.463	1.548	.217	.020	.233
	PE: LRE sequencing decisions	1.532[i]	1	1.532	3.359	.071	.042	.440
	PE: involved in decisions that...Determine eligibility for special education	1686.678[j]	1	1686.678	1.275	.262	.017	.200
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	1741.526[k]	1	1741.526	5.885	.018	.072	.668
	PE: involved in decisions that...Determine eligibility for APE service	6003.713[l]	1	6003.713	7.996	.006	.095	.797
	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	6369.796[m]	1	6369.796	16.296	.000	.177	.979
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	702.051[n]	1	702.051	1.629	.206	.021	.243

	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	613.041[o]	1	613.041	1.596	.210	.021	.239
	PE: current involvement in...Determining eligibility for special education	743.439[p]	1	743.439	1.232	.270	.016	.195
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	27518.832[q]	1	27518.832	20.632	.000	.214	.994
	PE: current involvement in...Determining eligibility for APE service	42144.900[r]	1	42144.900	30.390	.000	.286	1.000
	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	37509.335[s]	1	37509.335	24.254	.000	.242	.998
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	52537.439[t]	1	52537.439	42.400	.000	.358	1.000

	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	40984.251[u]	1	40984.251	32.302	.000	.298	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	42.001[v]	1	42.001	.026	.873	.000	.053
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	1206.282[w]	1	1206.282	.951	.333	.012	.161
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	83.693[x]	1	83.693	.064	.801	.001	.057

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	97.308[y]	1	97.308	.078	.780	.001	.059
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	183.185[z]	1	183.185	.135	.714	.002	.065
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	827.708[aa]	1	827.708	.674	.414	.009	.128

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	1995.200[ab]	1	1995.200	1.623	.207	.021	.242
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	402.770[ac]	1	402.770	.388	.535	.005	.094
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	635.405[ad]	1	635.405	.448	.505	.006	.101

	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	3.141 [ae]	1	3.141	.004	.948	.000	.050
	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	7.308 [af]	1	7.308	14.740	.000	.162	.966
	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	2.371 [ag]	1	2.371	.003	.958	.000	.050

	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	8.412[ah]	1	8.412	16.164	.000	.175	.978
	Actual Understanding of PE def and purpose	2.654[ai]	1	2.654	2.127	.149	.027	.302
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	211.328[aj]	1	211.328	.365	.548	.005	.092
	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	6.104[ak]	1	6.104	7.619	.007	.091	.778
	PE: Rate the extent to which you have adequate...access to support staff	426.093[al]	1	426.093	.568	.453	.007	.116

	PE: Rate the extent to which you have adequate...access to adaptive equipment	4142.316[am]	1	4142.316	4.736	.033	.059	.575
	PE: Rate the extent to which you have adequate...access to facilities	1316.900[an]	1	1316.900	1.541	.218	.020	.232
	PE: Rate the extent to which you have adequate...support from administrators	1788.155[ao]	1	1788.155	1.880	.174	.024	.273
	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	77.270[ap]	1	77.270	.104	.748	.001	.062
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	244.272[aq]	1	244.272	.283	.596	.004	.082
	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	7.212[ar]	1	7.212	.008	.927	.000	.051

Intercept	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	1235.054	1	1235.054	2587.273	.000	.971	1.000
	Rate how essential--Knowing the definition of special education	461676.349	1	461676.349	812.369	.000	.914	1.000
	Rate--Knowing the eligibility criteria for special education	479111.400	1	479111.400	891.666	.000	.921	1.000
	PE: Rate--Knowing that PE is a direct service	503047.016	1	503047.016	776.713	.000	.911	1.000
	PE: Rate--Knowing the definition of PE	477650.262	1	477650.262	854.452	.000	.918	1.000
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	622121.554	1	622121.554	3563.748	.000	.979	1.000
	PE: Rate--Knowing what must be included on IEP regarding APE	572379.193	1	572379.193	1756.106	.000	.959	1.000
	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	593676.104	1	593676.104	1799.960	.000	.959	1.000
	PE: LRE sequencing decisions	129.181	1	129.181	283.170	.000	.788	1.000

	PE: involved in decisions that...Determine eligibility for special education	144132.832	1	144132.832	108.973	.000	.589	1.000
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	573463.270	1	573463.270	1937.992	.000	.962	1.000
	PE: involved in decisions that...Determine eligibility for APE service	456799.200	1	456799.200	608.408	.000	.889	1.000
	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	553653.796	1	553653.796	1416.397	.000	.949	1.000
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	560012.821	1	560012.821	1299.704	.000	.945	1.000
	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	567729.349	1	567729.349	1477.823	.000	.951	1.000

	PE: current involvement in...Determining eligibility for special education	1582 6.516	1	15826. 516	26.236	.000	.257	.999
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	2562 24.06 3	1	25622 4.063	192.10 0	.000	.717	1.00 0
	PE: current involvement in...Determining eligibility for APE service	1707 77.20 8	1	17077 7.208	123.14 4	.000	.618	1.00 0
	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	2048 65.23 2	1	20486 5.232	132.47 1	.000	.635	1.00 0
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	2007 53.43 9	1	20075 3.439	162.01 7	.000	.681	1.00 0
	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	2142 07.02 1	1	21420 7.021	168.82 8	.000	.690	1.00 0

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	181826.001	1	181826.001	111.711	.000	.595	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	93283.205	1	93283.205	73.545	.000	.492	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	119128.154	1	119128.154	90.749	.000	.544	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	93513.000	1	93513.000	75.372	.000	.498	1.000

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	282264.415	1	282264.415	207.990	.000	.732	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	343623.093	1	343623.093	279.940	.000	.786	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	212932.893	1	212932.893	173.227	.000	.695	1.000

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	289058.000	1	289058.000	278.662	.000	.786	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	320699.815	1	320699.815	226.059	.000	.748	1.000
	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	361221.808	1	361221.808	497.138	.000	.867	1.000

	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	1332.539	1	1332.539	2687.770	.000	.973	1.000
	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	440348.832	1	440348.832	518.836	.000	.872	1.000
	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	1203.796	1	1203.796	2313.237	.000	.968	1.000
	Actual Understanding of PE def and purpose	445.526	1	445.526	357.000	.000	.824	1.000
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	444206.405	1	444206.405	766.665	.000	.910	1.000

	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	1135.232	1	1135.232	1417.098	.000	.949	1.000
	PE: Rate the extent to which you have adequate...access to support staff	294978.708	1	294978.708	393.496	.000	.838	1.000
	PE: Rate the extent to which you have adequate...access to adaptive equipment	292998.470	1	292998.470	334.969	.000	.815	1.000
	PE: Rate the extent to which you have adequate...access to facilities	293929.516	1	293929.516	343.969	.000	.819	1.000
	PE: Rate the extent to which you have adequate...support from administrators	326116.155	1	326116.155	342.878	.000	.819	1.000

	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	416747.270	1	416747.270	559.050	.000	.880	1.000
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	291991.503	1	291991.503	338.742	.000	.817	1.000
	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	291740.032	1	291740.032	341.184	.000	.818	1.000
group	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	11.208	1	11.208	23.479	.000	.236	.998
	Rate how essential--Knowing the definition of special education	213.939	1	213.939	.376	.541	.005	.093
	Rate--Knowing the eligibility criteria for special education	103.041	1	103.041	.192	.663	.003	.072

	PE: Rate--Knowing that PE is a direct service	26.400	1	26.400	.041	.841	.001	.055
	PE: Rate--Knowing the definition of PE	292.928	1	292.928	.524	.471	.007	.110
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	31.400	1	31.400	.180	.673	.002	.070
	PE: Rate--Knowing what must be included on IEP regarding APE	439.500	1	439.500	1.348	.249	.017	.209
	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	510.463	1	510.463	1.548	.217	.020	.233
	PE: LRE sequencing decisions	1.532	1	1.532	3.359	.071	.042	.440
	PE: involved in decisions that...Determine eligibility for special education	1686.678	1	1686.678	1.275	.262	.017	.200
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	1741.526	1	1741.526	5.885	.018	.072	.668
	PE: involved in decisions that...Determine eligibility for APE service	6003.713	1	6003.713	7.996	.006	.095	.797

	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	6369.796	1	6369.796	16.296	.000	.177	.979
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	702.051	1	702.051	1.629	.206	.021	.243
	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	613.041	1	613.041	1.596	.210	.021	.239
	PE: current involvement in...Determining eligibility for special education	743.439	1	743.439	1.232	.270	.016	.195
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	27518.832	1	27518.832	20.632	.000	.214	.994
	PE: current involvement in...Determining eligibility for APE service	42144.900	1	42144.900	30.390	.000	.286	1.000

	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	37509.335	1	37509.335	24.254	.000	.242	.998
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	52537.439	1	52537.439	42.400	.000	.358	1.000
	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	40984.251	1	40984.251	32.302	.000	.298	1.000
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	42.001	1	42.001	.026	.873	.000	.053

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	1206.282	1	1206.282	.951	.333	.012	.161
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	83.693	1	83.693	.064	.801	.001	.057
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	97.308	1	97.308	.078	.780	.001	.059
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	183.185	1	183.185	.135	.714	.002	.065

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	827.708	1	827.708	.674	.414	.009	.128
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	1995.200	1	1995.200	1.623	.207	.021	.242
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	402.770	1	402.770	.388	.535	.005	.094

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	635.405	1	635.405	.448	.505	.006	.101
	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	3.141	1	3.141	.004	.948	.000	.050
	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	7.308	1	7.308	14.740	.000	.162	.966

	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	2.371	1	2.371	.003	.958	.000	.050
	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	8.412	1	8.412	16.164	.000	.175	.978
	Actual Understanding of PE def and purpose	2.654	1	2.654	2.127	.149	.027	.302
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	211.328	1	211.328	.365	.548	.005	.092
	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	6.104	1	6.104	7.619	.007	.091	.778

	PE: Rate the extent to which you have adequate...access to support staff	426.093	1	426.093	.568	.453	.007	.116
	PE: Rate the extent to which you have adequate...access to adaptive equipment	4142.316	1	4142.316	4.736	.033	.059	.575
	PE: Rate the extent to which you have adequate...access to facilities	1316.900	1	1316.900	1.541	.218	.020	.232
	PE: Rate the extent to which you have adequate...support from administrators	1788.155	1	1788.155	1.880	.174	.024	.273
	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	77.270	1	77.270	.104	.748	.001	.062
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	244.272	1	244.272	.283	.596	.004	.082

	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	7.212	1	7.212	.008	.927	.000	.051
Error	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	36.279	76	.477				
	Rate how essential--Knowing the definition of special education	43191.446	76	568.308				
	Rate--Knowing the eligibility criteria for special education	40836.446	76	537.322				
	PE: Rate--Knowing that PE is a direct service	49222.279	76	647.662				
	PE: Rate--Knowing the definition of PE	42485.033	76	559.014				
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	13267.279	76	174.569				
	PE: Rate--Knowing what must be included on IEP regarding APE	24771.179	76	325.937				

	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	25066.883	76	329.827				
	PE: LRE sequencing decisions	34.671	76	.456				
	PE: involved in decisions that...Determine eligibility for special education	100521.117	76	1322.646				
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	22488.846	76	295.906				
	PE: involved in decisions that...Determine eligibility for APE service	57061.633	76	750.811				
	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	29707.550	76	390.889				
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	32746.667	76	430.877				

	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	29196.613	76	384.166				
	PE: current involvement in...Determining eligibility for special education	45846.779	76	603.247				
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	101369.117	76	1333.804				
	PE: current involvement in...Determining eligibility for APE service	105397.779	76	1386.813				
	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	117533.383	76	1546.492				
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	94170.779	76	1239.089				

	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	96427.967	76	1268.789				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	123700.717	76	1627.641				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	96397.167	76	1268.384				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	99767.179	76	1312.726				

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	94291.679	76	1240.680				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	103140.200	76	1357.108				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	93289.279	76	1227.491				

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	93419.979	76	1229.210				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	78835.179	76	1037.305				
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	107817.633	76	1418.653				

	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	55221.846	76	726.603				
	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	37.679	76	.496				
	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	64503.117	76	848.725				

	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	39.550	76	.520				
	Actual Understanding of PE def and purpose	94.846	76	1.248				
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	44034.467	76	579.401				
	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	60.883	76	.801				
	PE: Rate the extent to which you have adequate...access to support staff	56972.279	76	749.635				

	PE: Rate the extent to which you have adequate...access to adaptive equipment	66477.479	76	874.704				
	PE: Rate the extent to which you have adequate...access to facilities	64943.779	76	854.523				
	PE: Rate the extent to which you have adequate...support from administrators	72284.717	76	951.115				
	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	56654.679	76	745.456				
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	65511.113	76	861.988				
	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	64986.083	76	855.080				

Total	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	1410.000	78					
	Rate how essential--Knowing the definition of special education	535908.000	78					
	Rate--Knowing the eligibility criteria for special education	550432.000	78					
	PE: Rate--Knowing that PE is a direct service	578817.000	78					
	PE: Rate--Knowing the definition of PE	553079.000	78					
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	672571.000	78					
	PE: Rate--Knowing what must be included on IEP regarding APE	637543.000	78					
	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	661163.000	78					
	PE: LRE sequencing decisions	165.878	78					

	PE: involved in decisions that...Determine eligibility for special education	262144.000	78					
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	645455.000	78					
	PE: involved in decisions that...Determine eligibility for APE service	571427.000	78					
	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	650183.000	78					
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	634668.000	78					
	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	638603.000	78					

	PE: current involvement in...Determining eligibility for special education	6502 1.000	78					
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	4420 08.00 0	78					
	PE: current involvement in...Determining eligibility for APE service	3716 55.00 0	78					
	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	4162 76.00 0	78					
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	4117 75.00 0	78					
	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	4116 51.00 0	78					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	317146.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	201373.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	227224.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	191697.000	78					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	397970.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	465337.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	330486.000	78					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	379318.000	78					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	454187.000	78					
	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	437285.000	78					

	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	1501.000	78					
	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	529126.000	78					
	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	1369.000	78					
	Actual Understanding of PE def and purpose	585.000	78					
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	518174.000	78					

	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	1307.000	78					
	PE: Rate the extent to which you have adequate...access to support staff	374459.000	78					
	PE: Rate the extent to which you have adequate...access to adaptive equipment	397316.000	78					
	PE: Rate the extent to which you have adequate...access to facilities	386389.000	78					
	PE: Rate the extent to which you have adequate...support from administrators	430406.000	78					

	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	499692.000	78					
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	370068.000	78					
	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	372437.000	78					
Corrected Total	Rate understanding of the purpose and intent of IDEA's LRE provision... (1=Completely do not understand; 5=Completely understand)	47.487	77					
	Rate how essential--Knowing the definition of special education	43405.385	77					
	Rate--Knowing the eligibility criteria for special education	40939.487	77					

	PE: Rate--Knowing that PE is a direct service	4924 8.679	77					
	PE: Rate--Knowing the definition of PE	4277 7.962	77					
	PE: Rate--Knowing when specially designed PE (i.e., APE) is required and what it is	1329 8.679	77					
	PE: Rate--Knowing what must be included on IEP regarding APE	2521 0.679	77					
	PE: Rate--Knowing what placement is a student's Least Restrictive Environment	2557 7.346	77					
	PE: LRE sequencing decisions	36.20 3	77					
	PE: involved in decisions that...Determine eligibility for special education	1022 07.79 5	77					
	PE: involved in decisions that...Determine how you will conduct a needs assessment for PE	2423 0.372	77					
	PE: involved in decisions that...Determine eligibility for APE service	6306 5.346	77					

	PE: involved in decisions that...Determine appropriate individual education program (IEP) goals for APE	3607 7.346	77					
	PE: involved in decisions that...Determine in what placement the student will most satisfactorily achieve IEP goals for APE	3344 8.718	77					
	PE: involved in decisions that...Determine what supports will be needed for the placement to be successful in APE	2980 9.654	77					
	PE: current involvement in...Determining eligibility for special education	4659 0.218	77					
	PE: current involvement in...Determining how you will conduct a needs assessment for PE	1288 87.94 9	77					
	PE: current involvement in...Determining eligibility for APE service	1475 42.67 9	77					

	PE: current involvement in...Determining appropriate individual education program (IEP) goals for APE	155042.718	77					
	PE: current involvement in...Determining in what placement the student will most satisfactorily achieve IEP goals for APE	146708.218	77					
	PE: current involvement in...Determining what supports will be needed for the placement to be successful in APE	137412.218	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class size	123742.718	77					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class location	9760 3.449	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Class duration	9985 0.872	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Effect on students WITHOUT disabilities during class	9438 8.987	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability type	1033 23.38 5	77					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - Student disability severity	9411 6.987	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of a student with a disability	9541 5.179	77					
	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The wishes of the parents	7923 7.949	77					

	PE: Rate the extent to which the following factors influence LRE placement decisions for PE/APE in your teaching situation. - The IEP goals of a student with a disability	1084 53.038	77					
	PE: To what extent does your school's/district's decision-making process on the placement of students with disabilities align with the intent of the Least Restrictive Environment?	5522 4.987	77					
	PE: I would rate my understanding of the purpose and intent of my students' individualized education programs (IEPs) for PE as...(1=Completely do not understand; 5=Completely understand)	44.987	77					

	PE: To what extent are the IEPs developed and implemented as the law intends in your teaching situation?	64505.487	77					
	PE: I would rate my understanding of IDEA's definition of PE and its purpose as...(1=Completely do not understand; 5=Completely understand)	47.962	77					
	Actual Understanding of PE def and purpose	97.500	77					
	To what extent does the PE that your students with disabilities receive align with IDEA's definition and intent of PE?	44245.795	77					
	PE: I would rate my ability to overcome barriers to ensure the most appropriate placement of a student with disabilities in her Least Restrictive Environment as...(1=Completely not able; 5=Completely able)	66.987	77					

	PE: Rate the extent to which you have adequate...access to support staff	5739 8.372	77					
	PE: Rate the extent to which you have adequate...access to adaptive equipment	7061 9.795	77					
	PE: Rate the extent to which you have adequate...access to facilities	6626 0.679	77					
	PE: Rate the extent to which you have adequate...support from administrators	7407 2.872	77					
	PE: Rate the extent to which you have adequate...communication and collaboration with other teachers and paraeducators	5673 1.949	77					
	PE: Rate the extent to which you have adequate...knowledge among school personnel on how to educate students in LRE	6575 5.385	77					

	PE: To what extent are these barriers preventing you from placing students with disabilities in the Least Restrictive Environment?	6499 3.295	77				

a. R Squared = .236 (Adjusted R Squared = .226)
b. R Squared = .005 (Adjusted R Squared = -.008)
c. R Squared = .003 (Adjusted R Squared = -.011)
d. R Squared = .001 (Adjusted R Squared = -.013)
e. R Squared = .007 (Adjusted R Squared = -.006)
f. R Squared = .002 (Adjusted R Squared = -.011)
g. R Squared = .017 (Adjusted R Squared = .005)
h. R Squared = .020 (Adjusted R Squared = .007)
i. R Squared = .042 (Adjusted R Squared = .030)
j. R Squared = .017 (Adjusted R Squared = .004)
k. R Squared = .072 (Adjusted R Squared = .060)
l. R Squared = .095 (Adjusted R Squared = .083)
m. R Squared = .177 (Adjusted R Squared = .166)
n. R Squared = .021 (Adjusted R Squared = .008)
o. R Squared = .021 (Adjusted R Squared = .008)
p. R Squared = .016 (Adjusted R Squared = .003)
q. R Squared = .214 (Adjusted R Squared = .203)
r. R Squared = .286 (Adjusted R Squared = .276)
s. R Squared = .242 (Adjusted R Squared = .232)
t. R Squared = .358 (Adjusted R Squared = .350)
u. R Squared = .298 (Adjusted R Squared = .289)
v. R Squared = .000 (Adjusted R Squared = -.013)
w. R Squared = .012 (Adjusted R Squared = -.001)
x. R Squared = .001 (Adjusted R Squared = -.012)
y. R Squared = .001 (Adjusted R Squared = -.012)
z. R Squared = .002 (Adjusted R Squared = -.011)
aa. R Squared = .009 (Adjusted R Squared = -.004)
ab. R Squared = .021 (Adjusted R Squared = .008)
ac. R Squared = .005 (Adjusted R Squared = -.008)
ad. R Squared = .006 (Adjusted R Squared = -.007)
ae. R Squared = .000 (Adjusted R Squared = -.013)

af. R Squared = .162 (Adjusted R Squared = .151)
ag. R Squared = .000 (Adjusted R Squared = -.013)
ah. R Squared = .175 (Adjusted R Squared = .165)
ai. R Squared = .027 (Adjusted R Squared = .014)
aj. R Squared = .005 (Adjusted R Squared = -.008)
ak. R Squared = .091 (Adjusted R Squared = .079)
al. R Squared = .007 (Adjusted R Squared = -.006)
am. R Squared = .059 (Adjusted R Squared = .046)
an. R Squared = .020 (Adjusted R Squared = .007)
ao. R Squared = .024 (Adjusted R Squared = .011)
ap. R Squared = .001 (Adjusted R Squared = -.012)
aq. R Squared = .004 (Adjusted R Squared = -.009)
ar. R Squared = .000 (Adjusted R Squared = -.013)
as. Computed using alpha =