

EFFECTIVENESS OF PODCASTS AS PROFESSIONAL DEVELOPMENT FOR
TEXAS SPECIAL EDUCATION ADMINISTRATORS

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DEDICATION

This dissertation is dedicated to the three most important women in my life: my mother who showed me how to remove the largest barriers in my life to achieve success; my mentor Dr. Suzanna Dillon who guided me through this whole experience; and my wife who constantly supports and encourages me.

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ABSTRACT

SCOTT MCNAMARA

EFFECTIVENESS OF PODCASTS AS PROFESSIONAL DEVELOPMENT FOR TEXAS SPECIAL EDUCATION ADMINISTRATORS

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Special education administrators oversee students with disabilities' education, which includes physical education (PE). However, it has been well-reported that special education administrators have a dearth of knowledge with regard to PE for students with disabilities (Gray, 2016; Stewart, 2010). The ability of traditional professional development (PD) to provide special education administrators with the knowledge required to effectively supervise PE services for students with disabilities is hindered by access and cost barriers (Healy, Block, & Kelly, 2016). Online PD may potentially overcome these barriers as it can be made available to special education administrators at their convenience. One form of online PD is called content acquisition podcasts (CAPs), which are podcasts developed using the Cognitive Theory of Multi-Media Learning (Mayer, 2008), that have been shown to be a quick and efficient tool to disseminate knowledge to educators (Kennedy, Kellems, Thomas, & Newton, 2015). The purpose of this study was threefold; to determine: (a) CAPs effect on special education administrators' knowledge acquisition (KA) of content related to APE services; (b) special education administrators' perceptions of CAPs for PD purposes; and (c) whether or not the special education administrators' school district employment of an APE teacher

impacts their KA and perceptions of CAPs. The study involved three data collection components: (a) a demographic survey, (b) a pretest, posttest, and retention test that assessed their knowledge of PE for students with disabilities, and (c) a Perceptions of Professional Development Survey (Buschang, 2012) to assess their perception of CAPs. In total 29 participants met the inclusion criteria and completed the pretest and posttest; however only 21 completed all three tests. Results revealed that those who only completed the pretest and posttest had a significant increase in knowledge; however, those who completed retention test had significantly lower retention test scores compared to their posttest scores. Further, overall perceptions of the CAPs as an effective form of PD were quite high. The discussion involves an interpretation of the findings and recommendations for PD for special education administrators that focuses on content related to PE for students with disabilities, and the use of online PD and CAPs.

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CHAPTER I

INTRODUCTION

The Education for All Handicapped Children Act, enacted in 1975 and last reauthorized in 2004, is now titled the Individuals with Disabilities Education Act (IDEA, 2004). IDEA mandates that children from the ages of three to 21 with disabilities be provided a free and appropriate public education. Further, it ensures that students served in special education receive physical education (PE), which must occur within the least restrictive environment (LRE). According to the Government Accountability Office (GAO, 2010), schools throughout the United States (US) face various challenges in achieving successful inclusion of students with disabilities in PE. This pertains particularly to obstacles such as lack of support from special education administrators, lack of accessibility to curriculum, lack of LRE options, and lack of preparation of general PE teachers to teach students with disabilities effectively. Findings from the GAO (2010), as well as relevant literature (e.g., Gray, 2016; Hays, Njorjo, & Silliman-French, 2011; Stewart, 2010; Tripp & Zhu, 2005), indicate there may be a need for additional training with regard to PE for special education administrators, in order for them to effectively supervise and monitor PE services delivered to students with disabilities.

In Texas, the special education guidelines explain that PE for students with disabilities may be provided by PE teachers, special education teachers, or related service personnel (e.g., physical therapist, occupational therapist) who have the necessary

knowledge to teach PE (19 Texas Administrative Code § 89.1131; Buchanan, Silliman-French, & Jensen, 2002). However, specially designed PE, also known as adapted PE (APE), is frequently provided by an APE teacher (Dunn & Leitschuh, 2014). The Texas *Best Practices in APE Manual* (Silliman-French & Buswell, 2018) explains that although Texas guidelines allow related service personnel to administer APE services, it is not considered a best practice. However, related service personnel providing APE services may sometimes be a realistic necessity as there is a severe lack of APE teachers in the state of Texas (Young & Silliman-French, 2013), and these related service personnel can supplement and complement PE instruction. However, should not replace or substitute for APE or general PE. Indeed, PE is an integral component of special education and is supported within IDEA (2004) and has numerous, well-documented benefits associated with it (Li et al., 2016). These benefits include: (a) physiological (e.g., increased muscular strength, increased flexibility, decreased obesity levels), (b) cognitive functioning, (c) social participation, and (d) psychological well-being (e.g., self-esteem; GAO, 2010; Li et al., 2016; Rimmer, Rowland, & Yamaki, 2007; Wong et al., 2015).

In accordance with LRE, APE services can occur in a multitude of settings (e.g., general PE, segregated class, hospital) within students with disabilities' curriculum, that are deemed most appropriate for the needs of the individual student. APE programs have the same overall objectives as general PE programs; however, APE programs specialize in making accommodations and modifications to personalize the programs to meet the individual needs of students with disabilities (Dunn & Leitschuh, 2014). Adapted

physical educators are unique compared to general PE teachers, as they need knowledge about both PE curriculum (e.g., sport skills, locomotor skills, and fundamental motor skills) and skills associated with special education (e.g., adaptations, behavior management, assessment; Kwon & Block, 2014). Some states require teachers who teach APE to be certified (e.g., Michigan, Minnesota), however in Texas, this is not state requirement. Although there is not a requirement for state credentials for APE, many districts in Texas prefer APE teachers with national certifications to teach APE in their districts (Buchanan et al., 2002).

Special education administrators are especially pertinent to effective APE service delivery for students with disabilities, as they directly oversee special education programs (e.g., APE). Special education administrators are unique in that they need to understand the variety of curricula and accommodations needed within students with disabilities' school days (Gray, 2016; Thompson & O'Brian, 2007; Tripp & Zhu, 2005). In fact, one of the primary barriers that disrupts and prevents APE teachers from effectively delivering services to students with disabilities is the lack of perspective and support from special education administrators (Columna, Lieberman, Lytle, & Arndt, 2014; GAO, 2010; Stephens, Silliman-French, French, & Kinnison, 2011).

Special education administrators' support towards various educational practices and programs has a great deal of influence on school interest, availability of services, and the financial priorities of a school (Coelli & Green, 2012; Frick, Faircloth, & Little, 2013). Pickens and Dymond (2014) explained that in relation to specific content areas within special education, the degree of special education administrators' knowledge and their

perceptions towards specific educational areas will give those specific areas “priorities within school districts and the resources allocated to support these priorities” (Pickens & Dymond, 2014, p. 291). In addition, it was noted that if special education administrators do not fully understand or perceive the importance of an educational area, students with disabilities may not receive that type of education service and then would also not be able to benefit from it. These key points can easily be related to a field such as APE, which is often overlooked within special education (DeMatthews, 2014; GAO, 2010; Gray, 2016; Stephens et al., 2011).

One of the major roles of special education administrators is to provide crucial leadership for all special education programs, such as APE. In addition, their role is to improve teaching and student learning indirectly through their influence on staff motivation, commitment, and working conditions (Leithwood, Harris, & Hopkins, 2008). However, Tripp and Zhu (2005) stated that the most serious concern for the field of PE for students with disabilities is the lack of guidance from administrators. Special education administrators are able to guide school curricula and budgets that may incorporate PE programming for students with disabilities (Parrish & Wolman, 2004; Tripp & Zhu, 2005). Special education administrators need regular professional development (PD) to better understand and advocate for quality and evidence-based PE programs for students with disabilities (e.g., Gray, 2016; Stephens et al., 2011). However, there is little empirical research on PD for special education administrators and thus it is difficult to develop quality PD for special education administrators (Camburn, Goldring, Sebastian, May, & Huff, 2016).

IDEA (2004) stated that PD opportunities should be provided to special education administrators to ensure appropriate educational services for students with disabilities. In Texas, some regional education service centers offer PD workshops on the topic of APE (Buchanan et al., 2002); however, there is insufficient literature to explain to what extent special education administrators are using these resources to improve their abilities or their employees' abilities to deliver effective PE services to students with disabilities. In the past, school administrators only received occasional PD (Myers, 2017). Recent literature suggests that this is beginning to change as school districts realize the importance of providing ongoing PD opportunities to school administrators (Myers, 2017). In addition, research has shown that across the US special education administrators in particular have a significant need for additional PD (Montieth, 2000; Myers, 2017; Thompson & O'Brian, 2007), especially in the areas of federal and state special education mandates (Davidson & Algozzine, 2002; Pontius, 2010).

Crockett, Becker, and Quinn (2009) conducted a trends analysis on scholarly articles that had been published in the area of special education administration between 1970 and 2009. The investigators were able to identify 474 scholarly articles that pertained to special education administration, with 40% ($n = 189$) being identified as data-based research, rather than professional commentaries. It was found that 5% ($n = 23$) of the research articles focused on leadership preparation and development, which focused specifically on special education administrators' jobs and program issues they needed to address. Between 2000 and 2009, 11 research studies were identified that focused on leadership preparation and development. The content within the majority of these studies

between 2000 and 2009 focused on the need for knowledgeable special education administrators and on high-quality special education instruction.

Further, within the overall trends analysis, Crockett et al., (2009) found that 10% ($n = 46$) of the research articles targeted personnel training and development, which focused specifically on personnel issues, such as providing professional support and preparing teachers. In addition, the majority of these articles were published between 1980 and 1989. From the trends analysis, areas that were specifically identified as requiring additional research was the way in which special education administrators “use technology and how they communicate and disseminate information” (Crockett et al., p. 15), and how they receive information on current issues in special education. Lastly, it is important to note that one of the key points made by the authors of this trends analysis was that there is very little research that supports the practices (e.g., mentoring, developing a positive school climate) of special education administrators.

One medium of PD, online PD, may be useful to bridge the knowledge gap among special education administrators related to APE. Online settings are becoming an increasingly popular format for PD (e.g., Healy, 2015; Masters, De Kramer, O'Dwyer, Dash, & Russell, 2010). Online PD differs from traditional PD as it has the ability to overcome accessibility and cost barriers (Healy et al., 2016). There is a growing amount of research that has demonstrated the effectiveness and potential of online PD for a variety of types of teachers (e.g., special educators, Erickson, Noonan, & McCall, 2012; physical educators; Healy, 2015). This research has generally revealed that educators who have participated in online PD have increased their knowledge in their subject area

and improved their instructional practices (Erickson et al., 2012; Ertmer, Bai, Dong, Khalil, Hee Park, & Wang, 2002; Fisher, Schumaker, Culbertson, & Deshler, 2010; Healy, 2015; Hoban, Neu, & Castle, 2002). In addition, participating teachers generally viewed the online setting as an informative and innovative way to acquire their PD (Ertmer et al., 2012; Healy, 2015; Hoban et al., 2002). However, there is a lack of research focused on the implementation of online PD for school administrators, with little research focused on online PD in the field of special education administration (Bizzell, 2011; Fulton, McNamara, & Dillon, 2018; Howley, Chadwick, & Howley, 2002; Leithwood & Levin, 2008).

More specifically, there is a lack of information on the type (e.g., face to face; online) of PD school administrators receive (Nicholson, Harris-John, & Schimmel, 2005) and what type is effective in supporting the development of desired leadership behaviors and positively influencing student with disabilities' achievement (Bizzell, 2011; Howley et al., 2002; Leithwood & Levin, 2008; Salazar, 2007). With the research currently available, it has been shown that school administrators view online PD favorably as these techniques allow the convenience to connect, collaborate, and exchange information with others in similar professional circumstances across geographical distances (Dempsey & Stephens, 2011; Duncan, 2011; Ertmer et al., 2012; Fulton et al., 2018; Hoban et al., 2002). Furthermore, online PD for school administrators has shown to contribute to significant increases in their knowledge, as it offers resources administrators find helpful (Dempsey & Stephens, 2011; Duncan, 2011; Hoban et al., 2002). Administrators are able to use tools such as podcasts, online classes, and social networks that can make

meaningful connections between administrators across the country, which can enable them to increase their abilities to effectively design, implement, and supervise programs for students with disabilities (Duncan, 2011). Although there is some research that supports the use of online PD for school administrators, it should be further examined to determine if it is a useful form of PD to increase knowledge specifically for special education administrators.

One method of online PD that has become increasingly popular is the use of podcasts (Kennedy et al., 2015). Within this rise of online learning, podcasts have been noted as an educational phenomenon, with social and ‘media-rich’ features of online learning, which exemplifies the uniqueness and broad appeal of online learning (Kidd, 2012). One example of an emerging type of podcast used in research is content acquisition podcasts (CAPs; Kennedy et al., 2015). CAPs are podcast that distribute audio and video information and embeds evidence-based instructional design principles to deliver content (Kennedy et al., 2015). CAPs are able to blend the desirable features of podcasts (e.g., accessibility) with validated instructional design principles. Learning advantages of CAPs include (a) increased accessibility; (b) less time constraints, as the learner can engage with them in a setting of their choice, (c) increased learner centeredness, and (d) expert content with embedded evidence-based practices are explained and are accessible to many people (Carlisle, Thomas, & McCathren, 2016; Kidd, 2012).

Even though CAPs have many qualities that can enhance the learning of participants, there are several issues with using CAPs that has been found within a majority of the empirical literature. Two areas of most concern are that most research on podcasts has

offered little guidance on how to develop and implement podcasts (Tsagkias, Larson, & De Rijke, 2010). Furthermore, the creation of podcasts in research often does not adhere to any specific theoretical framework that guides instructional design (Carlisle et al., 2016; Clark, 2009; Mayer, 2011). Using a strong and relevant theory to guide the development of any intervention is an essential but often skipped step in the instructional design process (Mayer, 2008). Therefore, developing and utilizing CAPs offers promises for creating instructional materials that have used theoretically-based instructional design principles and are easy to use.

Research with CAPs has shown that participants (i.e., undergraduate students and practicing teachers) find CAPs to be useful, accessible, relevant, and assist with the overall learning process (Kay, 2012; Healy, 2015; Luna & Cullen, 2011). Although there is a wide-range of literature that has examined CAPs within the field of education (Kay, 2012; Kennedy et al., 2015; Healy, 2015), it is not known to what extent they would have an impact on the knowledge of special education administrators. It is difficult to generalize information about PD from other populations within education (e.g., undergraduates) to special education administrators, as there is a severe lack of empirical research on how this population is impacted by PD. To date, there is also a dearth of research focusing on any form of online learning with school administrators, with even fewer studies focusing on special education administrators (Camburn et al., 2016; Nicholson et al., 2005). The use of CAPs for special education administrators may be particularly advantageous, as this population has a severe lack of time due to their extensive job duties (Camburn et al., 2016). For example, special education

administrators may have an increased benefit from using CAPs as form of PD, as they allow for increased accessibility. Thus, it is essential to determine the effectiveness of specific forms of PD, such as CAPs, for special education administrators, as this information will assist in developing PD to meet their specific and unique needs.

Significance of the Problem

Numerous barriers prevent APE services from being effectively delivered to students with disabilities. One barrier is the lack of support special education administrator provide to APE services, which is partially due to a lack of knowledge pertinent to effective APE service delivery (Gray, 2016; Hays, et al., 2011; Stewart, 2010; Tripp & Zhu, 2005). For instance, special education administrators' understanding of special education laws is essential to provide effective and legally correct special education services to students with disabilities (Yell, Thomas, & Katsiyannis, 2012). However, Davidson and Algozzine (2002) reported that 47% of special education administrators need additional training with regard to special education law. A lack of knowledge of special education law could affect their knowledge about specific areas of special education (e.g., LRE). It is essential to identify practices to increase special education administrators' knowledge of APE programs. There is also a significant lack of research on the use of online PD for special education administrators to improve their knowledge in their field (Bizzell, 2011; Fulton et al., 2018; Howley et al., 2002; Leithwood & Levin, 2008). Finally, it is also important to note that there is an apparent lack of experimental research in the field of special education administration, especially in relation to PD (Camburn et al., 2016; Montieth, 2000). Reasons for this lack of research on PD may be

directly related to the fact that school administrators are particularly constrained by a lack of time (Camburn et al., 2016). Therefore, this investigation aims to examine the effectiveness of using CAPs to increase Texas special education administrator's knowledge of APE services.

Theoretical Basis of the Study

Several theories were examined that may have served as the theoretical foundation for this investigation. The two theories that best fit this investigation were the cognitive theory of multimedia learning (CTML; Mayer, 2008) and the andragogy theory (Knowles, 1975). The CTML was selected as the primary theoretical framework that guided the development of the CAPs, whereas the andragogy theory (i.e., adult learning theory) was selected as a set of guiding principles that directed the development of the online PD.

Cognitive Theory of Multimedia Learning

The cognitive load theory (Sweller, 1988) and the dual-processing theory (Bagui, 1998) formed the foundation for Mayer's (2001) CTML which provides an empirically validated design process for developing online PD, which was used to create the three CAPs used for this investigation. The cognitive load theory was designed to provide guidelines intended to assist in the presentation of information in a manner that optimizes intellectual performance, while taking into account the inherent limitations of concurrent working memory load on learning during instruction (Sweller, 1988). The dual-processing theory holds that both visual and auditory information can be used when recalling information (Bagui, 1998).

The CTML has three assumptions for learners: (a) there are two separate channels for processing verbal and visual information (i.e., dual channel assumption); (b) there are limits in the amount of information that can be processed in each channel (i.e., limited capacity assumption); and (c) learners engage in active learning by attending to relevant information and organizing selected information into mental representations and integrating mental representations with prior knowledge (i.e., constructive learning assumption; Mayer, 2008; Mayer, Dow & Mayer, 2003). In response to these assumptions, the instructional design of online PD must (a) reduce extraneous processing (i.e., any cognitive processing that does not support the instructional goal); (b) manage essential processing (i.e., any cognitive processing that does support the instructional goal); and (c) cultivate generative processing (i.e., cognitive processing used to organize and integrate incoming and prior knowledge; Bagui, 1998; DeLeeuw & Mayer, 2008; Mayer, 2008, see Table 1). Mayer's (2001) CTML was used for this investigation to provide guidelines in creating effective CAPs to use when attempting to increase special education administrators' knowledge of APE services. Mayer (2008) highlighted a number of principles to apply when developing multimedia for presentations to meet the multimedia learning assumptions.

Table 1

<i>Cognitive Processing During Learning</i>		
Cognitive Processing	Description	Instructional Goal
Extraneous	Extra information not related to goal of instruction, caused by poor design	Reduce extraneous stimuli and instruction
Essential	Tries to accurately represent essential material	Break lesson into key points and focus on main points
Generative	Tries to make sense of essential material caused by learner's effort and focus	Use social cues to motivate the learner to understand the material

Reducing extraneous processing. There are five evidence-based instructional methods have been developed to reduce excessive and irrelevant extraneous processing when developing multimedia for online PD: (a) coherence, (b) signaling, (c) redundancy, (d) spatial contiguity, and (e) temporal contiguity (Clark, 2002; Mayer, 2008; see Table 2). The coherence principle explains that individuals learn best when extraneous stimuli are excluded. Using gratuitous visuals, text, and sounds can negatively impact the learning process. The principle of signaling involves the highlighting of the essential material. The redundancy principle explains that displaying graphics with audio and text can negatively impact the learner, so it is more effective to present the learner with audio narration and visuals only. The spatial contiguity principle explains that information shown in pictures and words should be presented close together to prevent the need for additional scanning. Lastly, the principle of temporal contiguity refers to the need for audio and visual instruction to be presented simultaneously, rather than in succession.

Table 2

Five Principles to Reduce Extraneous Processing

Principle	Description
Coherence principle	Delete extraneous material
Signaling principle	Highlight essential material
Redundancy principle	Do not add onscreen captions to narrated graphics
Spatial contiguity principle	Place printed words near corresponding part of graphics
Temporal contiguity principle	Present spoken words at same time as corresponding graphics

Managing essential processing. The second element key to effective instruction within multimedia use is managing essential processing (DeLeeuw & Mayers, 2008).

Three principles are used as guidelines when developing multimedia to achieve effective management of essential information. First, the segment principle guides the developers to break down large portions of material into smaller pieces. Experiments have shown material presented in segments to be learned more effectively, than when presented continuously (Mayer, 2008). The pre-training principle explains that learning can be increased using cues and images, which can be connected to the learner's prior knowledge. Finally, the modality principle allows learners to develop deeper understanding of multimedia that include integrated audio and visuals.

Generative processing. When extraneous processing is reduced and essential processing is effectively used, then cognitive processing can be used to organize and integrate incoming and prior knowledge. Mayer (2008) created three principles to help with this process when creating multimedia. The personalization principle explains people learn best when information is presented in informal speech with a conversational style compared to a formal academic tone. The voice principle explains that people learn

better from a human voice with a local accent than from computerized voices or from a foreign accent. Lastly, the multimedia principle explains that people learn better through words and pictures presented together rather than when either is presented alone.

Adult Learning Theory

As well as incorporating the principles from the instructional design CTML theories into the design and delivery of the CAPs for special education administrators, it is important to also consider relevant learning theories to design effective PD. Andragogy is a theory and practice of educating adult learners. Knowles (1975) makes the argument that pedagogy is the art and science of teaching children, is fundamentally a teacher-centered model specifically developed for teaching children (Ozuah, 2005). The andragogy theory explains that children and adults have significant differences in learning characteristics, and the teaching strategies that should be used for adult learning conflicts with traditional pedagogy (Knowles, 1989; Ozuah, 2005). Knowles (1989) explained that the andragogy theory follows five distinct assumptions that differ from traditional pedagogy. The five assumptions outline that adult learners, compared to child learners, have greater: (a) self-concept (i.e., adults have a more mature self-concept and are more self-directed); (b) personal and professional experiences; (c) readiness to learn; (d) orientation to learning (i.e., the ability to immediately apply new knowledge); and (e) motivation to learn (Knowles, 1975; Smith, 2002; Terehoff, 2002). Knowles's andragogy theory was chosen as the most appropriate theory to guide this investigation because: (a) it is a widely known and used theoretical framework for adult learning (Terehoff, 2002), and (b) research has documented its effectiveness for the development and

implementation of online PD tools for adults (e.g., Healy, 2015; Quinney, Smith, & Galbraith, 2013).

Purpose

The purpose of this study was threefold. The purpose was to determine: (a) CAPs effect on special education administrators' knowledge acquisition (KA) of content related to APE services; (b) special education administrators' perceptions of CAPs for PD purposes; and (c) whether or not the special education administrators' school district employment of an APE teacher impacts their KA and perceptions of CAPs.

Null Hypotheses

Based on the research design of this study, there are four null hypotheses:

1. There will be no significant change in content knowledge scores between the tests (pretest, posttest, retention test), for special education administrators.
2. There will be no significant interaction between the special education administrators' school district's employment of APE teachers and the change in their content knowledge scores between the tests (pretest, posttest, retention test).
3. There will be no significant effect of the special education administrator's school district's employment of APE teachers on their perception of the CAPs.
4. There will be no significant correlation between the special education administrators' perception of the CAPs and the change in their content knowledge scores from pretest to posttest to retention test.

Research Questions

For the purpose of the study, there are four research questions:

1. How will the use of CAPs impact special education administrators' KA of content on APE?
2. How will special education administrators' KA of APE content from the CAPs be impacted by whether their school district employs APE teachers?
3. How will special education administrators perceive CAPs as a method of receiving PD?
4. How will special education administrators' perception of the CAPs correlate with their KA from the CAPs?

Delimitations

The study was subject to the following delimitations:

1. Participants were included if they were a current school administrator in Texas, with at least three years of experience, and their primary job was to monitor and supervise special education programs.
2. Participants were recruited from emailing the contacts on the Texas Education Agency's administration list serve.
3. Only content knowledge, demographics information (e.g., status of school district's employment of APE teachers), and perception of the online PD were assessed.
4. Only three APE content areas, which were developed into three CAPs, were agreed on by the panel of experts as being most important for special

education administrators in order to know to effectively monitor and supervise an APE program.

5. Content experts involved in the objective and transcript validation process of the CAPs have expertise in APE. The APE content experts validated all three CAPs based on the standards from the Adapted Physical Education National Standards (APENS; Kelly, 2008) and pertinent information specific to APE.

Assumptions

The study was subject to the following assumptions:

1. Participants will provide honest responses in self-reporting.
2. The instruments developed for this study will have limited measurement errors that could be attributed to the instrument itself, the participant, or the environment.
3. Participants will listen to each CAP in their entirety.

Definition of Terms

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

1. Adapted Physical Education (APE): Specially designed PE that meets the unique needs of students with disabilities, including individualized programs that develop physical and motor fitness; fundamental motor skills and patterns; and performance in aquatics, dance, individual and group games, and sports (Dunn & Leitschuh, 2014; IDEA, 2004). APE is a direct instructional service frequently provided by an adapted physical educator.

2. Andragogy Theory: The art and science of guiding adult learning and adult education (Knowles, 1975).
3. CAP 1 Content: The content for the first CAP focused on federal laws that address APE. Specifically, this CAP focused on federal laws, such as IDEA (2004) and Section 504 of the Rehabilitation Act of 1973, that have pertinent information with regard to APE (see Appendix K).
4. CAP 2 Content: The content for the second CAP focused on the inclusion and LRE as defined by IDEA (2004) for students with disabilities in a PE setting. Specifically, it focused on best practices and general guidelines with regard to inclusion and LRE in PE that should be in place to ensure that students with disabilities are included into the general education PE setting as much as possible (see Appendix J).
5. CAP 3 Content: The content for the third and final CAP focused on effective teaching behaviors of APE teachers. These effective teaching behaviors included research-based APE teaching strategies that have been found to be beneficial to use while instructing students with disabilities (see Appendix L).
6. Cognitive Theory of Multimedia Learning (CTML). The CTML is based on three main assumptions: there are two channels for processing information (auditory and visual); there is limited channel capacity; and learning is an active processing, selecting, organizing, and integrating information (Mayer, 2001).

7. Content Acquisition Podcasts (CAP): An instructional strategy that embeds evidence-based instructional design principles to package and deliver critical content (Kennedy et al., 2015).
8. Theory-Experts: The experts who determined the CAPs adherence to the principles of the CTML. These experts included APE graduate students at the investigator's university. These experts watched a training video on Mayer's (2008) CTML principles, participated in a 10-minute discussion about the principles, and needed at least an 80% score (10 out of 12 correct) to pass a knowledge posttest on the principles.
9. APE Experts: The experts for (a) the CAP topic identification, (b) the CAP objective validation process, and (c) the CAP transcript validation process and for the KA test content. These experts included APE higher education professionals and public school APE teachers who have at least three years of experience in the field of APE and are nationally certified APE teachers (i.e., CAPE). These experts were identified at the National Consortium for PE for Individuals with Disabilities' (NCPEID) national conference or through NCPEID contacts from the investigators' dissertation committee.
10. APE Test Validation Experts: The experts for the KA test content were experts currently on an APENS exam revision committee, who were working on validating a new version of the APENS exam. These experts were identified through NCPEID contacts from the investigators' dissertation committee.

11. Knowledge Acquisition (KA): Involves the acquisition of knowledge from documents, online tools, and experts. “The knowledge may be specific to the problem domain or to the problem-solving procedures, it may be general knowledge (e.g., knowledge about business), or it may be meta-knowledge (i.e., knowledge about knowledge)” (Turban, Sharda, & Delen, 2011, p.177).
12. Online Professional Development (PD): Processes and activities accessible online that serves to enhance professional knowledge, skills and attitudes of educators (Healy, 2015).
13. Professional Development (PD): Processes designed to enhance the knowledge and skills to be used to improve student, teacher, and educational program outcomes (Guskey, 2002).
14. Special Education Administrator: School leaders whose primary role is to supervise and monitor special education programs within a school district. In addition, for this study, special education administrators must have a valid administrator’s license in Texas, and at least 3 years of experience as a special education administrator.

CHAPTER II

LITERATURE REVIEW

The purpose of this investigation was to determine (a) content acquisition podcasts (CAPs) effect on special education administrators' knowledge acquisition (KA) of adapted physical education (APE) content; (b) special education administrators' perceptions of CAPs for professional development (PD) purposes; and (c) whether or not the special education administrators' school district employment of an APE teacher impacts their KA and perceptions of CAPs. The following sections provide support for the use of online PD tools, such as CAPs, as a means to increase knowledge of adult learners in the field of education. Specifically, the purposes of the literature review were to: (a) gather quality research articles to acquire an in-depth understanding of the topics related to this investigation; (b) support the appropriateness of the theoretical framework (i.e. Cognitive Theory of Multi-Media Learning [CTML]) used in this investigation; and (c) determine methodological designs that can be applied to this investigation.

Method

Initial Search Procedure

Potential relevant articles published in the past 15 years (i.e., 2002-2017) were initially located through online indexing system searches. The investigator conducted a search of the literature using the indexing systems of Academic Search Complete, Education Administrator Abstracts, ERIC, Professional Development Collection, ProQuest Nursing and Allied Health Database, PsychINFO, and SPORTDiscus.

Keywords used for the searches includes “adapted physical education,” “school administration,” “special education administration,” “educational leadership,” “professional development,” “adult learning,” “podcast,” and “andragogy”.

Criteria for Inclusion

To be considered for this literature review, articles needed to meet the following inclusion criteria: (a) published between April, 2002 and April, 2017; (b) published in English language journals; (c) located in peer-reviewed publications (i.e., books and book chapters were excluded); and (d) utilized an experimental/quasi-experimental, correlational, single-subject, or qualitative research design. Only articles that met these criteria were eligible for evaluation.

Adapted Physical Activity Taxonomy

The Adapted Physical Activity Taxonomy (APAT; Carano, 2014) was used to evaluate individual research articles and to determine the strength of the recommendation. The APAT was developed to evaluate research studies within the field of adapted physical activity. The APAT is comprised of two parts of review: (a) review for quality of study and (b) review for level of recommendation. The APAT is divided into separate scales to be used for four types of research designs that are:

(a) experimental/quasi-experimental designs, (b) single subject design, (c) correlational design, and (d) qualitative design. Using this review process, the investigator provided a systematic review of the relevant research in the field related to the current investigation. In addition, other relevant articles were included within the literature review to provide a

clearer scope of the literature around this investigations topics (i.e., school administration, online learning, APE).

Quality of Strength of Study

The research design and components of each identified article determined the APAT level. Each ranking level indicate a separate strength of the study; a level ranking of one indicates a strong study, a level ranking of two indicates a moderate study, and a level ranking of three indicates a weak study. Each section of the article (e.g., method, results) is evaluated for quality (Carano, 2014).

Level of Recommendation

The APAT's second portion is used to determine the level of recommendation for each research study in this literature review. There are three levels of recommendation (Carano, 2014). Level A recommendations can be made if one of the following criteria is met: (a) the results of the study hold significant value and can be applied to multiple settings related to adapted physical activity, (b) consistent findings using randomized trials or relating to a systematic review, or (c) interventions were validated and relevant to populations including individuals with disabilities. A Level B recommendation can be made when evidence-based recommendations provide direct benefits for individuals with disabilities that are not based on opinion or field-based experiences, but do not provide a significant outcome that can be applied to educational, recreational, or disability sport settings. Level B recommendations include limited or inconsistent evidence relating to adapted physical activity. Level C recommendations are made when the study is based on opinion, consensus, practice or field-based experiences, or studies that do not directly

relate to benefiting individuals with disabilities through physical activity. This review process was used to develop tables that include a summary of the quality indicators and level of recommendation for all of the studies that met the inclusion criteria (see Appendix B). In addition, other relevant articles that did not meet the inclusion criteria were included within this literature review to provide a more comprehensive scope of the literature around the topic of online PD for school administrators.

School Administration and Adapted Physical Education

School administrators are able to positively impact staff and students in a variety of ways (e.g., improve content knowledge, school atmosphere; Damiani, 2014; Gray, 2016). However, it is very challenging for school administrators to be proficient in understanding all curriculum areas within a school, with PE being a curriculum area that is often overlooked by school administrators (DeMatthews, 2014; GAO, 2010; Gray, 2016). With regard to PE, school administrators should be responsible to (a) ensure that their schools have an adequate amount of time for students to receive quality PE, (b) ensure that qualified staff are teaching PE, (c) provide the resources needed for PE, and (d) develop an atmosphere that promotes wellness and health for both staff and students (Leidl, 2007).

School Administrators' Lack of Background Knowledge

Findings from the GAO (2010) indicate there is a significant need for training for special education administrators to supervise effectively PE services delivered to students with disabilities. This may be related to special education administrators' lack of adequate knowledge with regard to special education laws, which are essential to provide

effective PE services to students with disabilities (Davidson & Algozzine, 2002; Yell et al., 2012). Most general school administration certification programs train future special education administrators (Monteith, 2000; Powell, 2009); however, most of the general administration school programs in the United States (US) do not include sufficient coverage of special education, with some of the general school administration programs only requiring one special education course or the course is offered as an elective (Davidson & Algozzine, 2002; Yell et al., 2012; Hirth & Valesky, 1991).

Witt (2003) surveyed 94 general school administration certification programs across the US and how well their programs address special education. The participants were university educational leadership department chairs and were asked questions pertaining to certification endorsements, course offerings, and their perception of how well special education issues are addressed in their programs. Witt found that although the participants valued the inclusion of key special education topics within their programs, there was a perceived need for improving the amount of special education topics covered. In addition, and perhaps most alarmingly, approximately half of general school administration programs did not require any special education courses. Another related factor is that Hirth and Valesky (1991) found, through survey data from department chairs of educational leadership programs at 66 universities that many of the special education courses are only offered at the undergraduate level, rather than at the more appropriate graduate level. This leads to various issues and gaps in knowledge of school administrators in areas related to special education (e.g., law, PE; Coelli & Green, 2012; Davidson & Algozzine, 2002).

Davidson and Algozzine (2002) surveyed 264 beginning administrators on their perception of their knowledge of procedural safeguards in Individuals with Disabilities Education Act (IDEA, 2004). The participants were selected from a rigorous school administration fellows' program at a university, and were about to graduate or graduated within the last four years. They found that 47% of the participants reported a 'limited' or 'basic' knowledge of special education law. The authors concluded that effective leadership depends upon the acquired knowledge and understanding that administrator has for laws, policies, and regulations governing the system. A lack of knowledge of special education law could affect their knowledge and ability to implement specific components of the law effectively, such as ensuring APE is provided to students with disabilities that are in need of APE services. In addition, Mathis (2005) examined the impact of a training program on school administrators' knowledge of special education law. There were three required courses designed to address special education administration competencies, with four areas of emphasis: core, assessment, special problems, and internships. Participants consisted of principals, assistant principals, and special education administrators who were either enrolled ($n = 42$) or not enrolled in the training program ($n = 48$). Mathis developed an instrument to assess three subscales: (a) administrators' knowledge of special education law, (b) application of knowledge of the law, and (c) their ability to make decisions regarding compliance with law. The results of this study suggests that individuals who receive training in the area of special education administration were better equipped to ensure the provision of special education services to students with disabilities.

With regard to PE for students with disabilities, a topic often overlooked or only briefly mentioned even in the special education introduction courses offered by universities. For instance, Hays et al. (2011) analyzed 33 special education college course textbooks published between 2005 and 2011 and found that 19 textbooks (57%) had no mention of PE for students with disabilities. In addition, in only six of the texts was the correct term *adapted physical education* even used, while two used *adaptive physical education*, and one used both terms. In one text, APE was identified as a related service and only one textbook discussed that PE was a part of the definition of special education in IDEA (2004). Hays et al. (2011) found that APE was minimally mentioned within special education textbooks, which leads to a greater likelihood that special education administrators may not fully understand the curriculum area of APE.

School Administrators' Perspectives of Physical Education

Special education administrators' perspective of PE is a primary barrier that disrupts and prevents effective PE service delivery to students with disabilities (GAO, 2010; Stephens et al., 2011; Trip & Zhu, 2005). In some of the interviews conducted by the GAO (2010) there were state, district, and school officials that cited a lack of importance placed on PE as a school academic subject compared to other subjects (e.g., math). In fact, school officials explained that the greater emphasis on assessments for curriculum such as reading and math mandated by federal law has led to a reduction in the number of PE classes required. In addition, the GAO reported that school administrators did not feel like they are given much guidance on implementing PE programing for students with

disabilities and need more information and PD with regard to PE for students with disabilities.

Hodge and Akuffo (2007) found that urban PE teachers reported that they only have contact with their school administrators when student behavior becomes a concern or when scheduling conflicts arise; this led to PE teachers feeling less valued than other teachers. Another study used a questionnaire to collect data from PE teachers in Texas on the barriers to provide PE services effectively (Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005). The questionnaires were given to a group of PE teachers annually after an in-service training on PE for four consecutive years. Each time the questionnaire was delivered, it was given to a new set of participants, with 241 participants. The barriers that were perceived to be the largest obstacles to providing quality PE services included feeling that PE was a low priority to school administrators and excessively large class sizes. The authors concluded that the lack of funding and low priority placed on PE, in comparison to other academic subjects, resulted in large barriers to implementing quality PE programs.

Gray (2016) conducted an investigation on various school professionals' knowledge and perceptions of the fields of PE for students with disabilities, which found that school administrators had a general lack of knowledge and low perceptions in relation to PE. The investigator surveyed school administrators ($n = 34$), PE and APE teachers ($n = 23$), general education classroom teachers ($n = 281$), special educators ($n = 57$), and para-professionals ($n = 67$) on how well their school was meeting PE standards and their perceptions towards PE for students with disabilities. With regard to their perceptions, it

was found that the school administrators had a significantly lower perception of role of PE for students with disabilities when compared to PE and APE teachers. In addition, it was found that a majority of students with disabilities did not have PE or APE written into their individualized education programs (IEP). School administrators, compared to PE and APE teachers, had a significantly lower understanding of PE content standards; however, the school administrators had a significantly higher understanding of PE content standards compared to the special education and general education teachers. Lastly, it was also found that overall the participants who had higher levels of PD or college courses related to PE also had significantly higher scores with regard to their understanding of PE content standards; however this cannot be attributed to the school administrators in this study, as a vast majority of them did not indicate the level of training they had received with regard to PE. This study suggest that school personnel, including school administrators, may have a lack of knowledge and low perceptions with relation to PE for students with disabilities, and thus are in need of PD that focuses on PE for students with disabilities. To facilitate PD for school administrators effectively, an understanding of the literature on PD for school administrators is needed.

Professional Development for School Administrators

There is a lack of experimental research with school administrators and PD, especially in relation to special education administrators (Camburn et al., 2016; Crockett et al., 2009; Montieth, 2000). Camburn et al. (2016) conducted a literature review on experimental research within educational leadership and PD, in which they pointed out that there may be challenges with regard to conducting experimental studies that examine

the effectiveness of school administrators' PD. Challenges that were noted included (a) a lack of fidelity of implementation of the intervention, which means failure to enact the core components of the intervention; and (b) school administrators are a particularly difficult group when conducting experimental designs, as this group is constrained by a lack of time, lack of interest, and varying levels of encouragement from their district staff. In addition, they also found that literature related to experimental evidence of the effects of school administrator training programs (i.e., PD and pre-service programs) is very limited.

Need for Professional Development for School Administrators

The need for additional PD for school administrators has been well-established, especially in areas relating to special education (Camburn et al., 2016; Crockett et al., 2009; Davidson & Algozzine, 2002; Monteith, 2000; Pontius, 2010; Powell, 2009; Witt, 2003). Boscardin, Weir, and Kusek (2010) administered a national survey to all of the states within the US, inquiring about the requirements necessary to attain and retain a school administration credential and found that only 19 out of the 50 states reported a PD requirement for school administrators to retain their state administration credential. A wide variability in requirements also emerged between states with PD requirements ranging from 42 to 180 hours to be completed within a 2 to 5 year range.

Thompson and O'Brien (2007) surveyed 66 special education administrators using the *Illinois State University Special Education Director Needs Survey* to determine their PD needs, topics they perceived to be the most important to their positions, and their career paths to becoming special education administrators. Thompson and O'Brien

(2007) found there was a significant need to better understand best practices in special education instruction, legislation, and assessment. Further, it was found that most often special education administrators had at least one year of experience as a special education teacher, prior to becoming administrators (83%), with the next most commonly reported prior work experience being related service providers (27%; e.g., physical therapist). Despite their previous experience in education settings, many special education teachers do not often have a full understanding of instructional leadership or of other curriculums (e.g., PE), which may lead them to be poor leaders for all of the academic fields within the realm of special education (Gray, 2016). For instance, Stewart (2010) found, through surveying administrators who oversaw APE programs that most administrators are uncertain whether they even need to perform regular evaluations and eligibility standards, and whether there are evaluative criteria that exist for PE for students with disabilities. This suggests that school administrators need more refined PD that is developed using a guiding framework that addresses a variety of areas within the field of special education, including APE.

School Administration Professional Development and Adult Learning

Terehoff (2002) wrote a conceptual article that focused on how school administrators can improve teacher PD through using adult learning principles to develop learning environments. Terehoff hypothesized that many school administrators may believe that teacher PD should be based off pedagogy principles, however, it is well-documented that adults learn much differently than children (Knowles, 1975). Further, it is explained that using adult learning principles allow school administrators to focus on the learning

process rather than the content. This article concludes with the notion that it is important to develop PD that is grounded in adult learning principles, as these principles will not only increase the learners' abilities, but will also allow them to control their own learning. For example, Dawson (2015) conducted a multiple case study which explored support for teacher learning through Professional Learning Communities (PLC), which utilized the andragogy theory as a framework, as school administrators should use the andragogy theory to provide a foundation to support PD (Knowles, 1989). In addition, the theory of andragogy and PLCs are strongly associated with one another, as PLCs are rooted in self-directed learning and being able to apply knowledge to one's professional life (Dawson, 2015). The participants included principals ($n = 3$) and teachers ($n = 13$) that were involved in PLCs. Dawson used interviews, focus groups and document analysis as primary data sources for this study. This investigation found that PLCs paired with adult learning theory principles provide school administrators the tools to guide teacher learning. In addition, it has also been well-documented that school administrators have greater learning outcomes when their PD is developed using adult learning principles (Monteith, 2000).

Styles (2010) surveyed and interviewed 37 Texas school administrators on their perceptions of their college administration programs and their perceptions of Knowles's (1975) theory of andragogy within their administration programs. The results found that there was a need for more instruction in the areas of curriculum, instruction, and assessment. However, it was found that none of the participants were familiar with Knowles's theory of adult learning prior to the study. In addition, through in-depth

interviews and explanation of the adult learning theory, some participants elaborated that they felt many of the andragogy principles (e.g., self-directed learning) were in almost every facet of their educational leadership courses. However, other participants expressed that Knowles's concepts were only addressed when discussing PD for teachers. Further, two administrators stated that they felt that two of Knowles's principles, adult learning is problem-based rather than content-oriented and experiences provide the basis for learning, were not adequately met throughout their programs. It is not only important for school administration programs to use adult learning principles, but for the program to teach these concepts as well, as school administrators should keep them in mind while supervising their teachers and seeking their own PD opportunities (Terehoff, 2002). The results from this study lead to a consensus that school administration preparation programs should have more emphasis placed on Knowles's principles of andragogy.

Although there is a lack of research on PD specifically crafted for special education administrators, a few researchers have examined the effectiveness of college courses for this population. Monteith (2000) examined the use of a college program to train 27 school administrators on how to design, develop, and effectively supervise programs for students with disabilities in the least restrictive environment (LRE). The course development was guided partially by Knowles's (1975) andragogy theory, as the experiences and prior knowledge of the participants guided the program development and implementation. The program consisted of five college courses in special education administration (e.g., assessment in special education, supervising programs for educating students with disabilities) and involved a face-to-face mentoring program. Participants

responded to an open-ended questionnaire that was related to their perceptions of the effectiveness of the course. The overall results were positive, specifically that organizational and motivational strategies incorporated in the program contributed to its success. The results of this study suggest that learning experiences that are developed with Knowles's adult learning principles for school administrators are successful and significantly impact the learners' KA.

Types of Professional Development

The traditional delivery model for PD for school administrators has involved short-term PD that is delivered by experts (Bizzell, 2011; Nicholson et al., 2005; Spanneut, Tobin, & Ayers, 2012). Nicholson and colleagues conducted an analysis of previous literature related to PD for school administrators and state PD guidelines for school administrators. The investigators found that although many states are beginning to use a variety of modes (e.g., online modules, video conferencing) for PD, the majority of PD is still being delivered through a traditional in-service model. For example, one study, conducted by Miller et al. (2016), examined the use of a two-year leadership PD program on approximately 100 school administrators' learning, efficacy beliefs, and behaviors. The leadership PD program was developed based on a meta-analysis of leadership studies (Waters, Marzano, & McNulty, 2003). The leadership PD program was offered through an intensive series of two-day PD sessions that allowed school administrators to apply what they learned between sessions. The participants were randomly assigned to an experimental group (i.e., received two years of the PD) and the control group (i.e., received no PD). Using surveys, Waters, Marzano, and McNulty (2003) found that the

school administrators from the experimental group had improved knowledge, efficacy belief, and behavior outcomes. These outcomes were related to targeted leadership responsibilities, with the largest impact on school administrators' sense of efficacy for instructional improvement. Although well-designed traditional PD has shown to have significant improvements in a variety of areas for school administrators, the ability for them to receive the knowledge and skills they need is hindered by time (i.e., two years of PD), access, and cost barriers (Healy et al., 2016).

Bizzell (2011) interviewed 13 principals about the different types of PD they received, including online PD. The principals within this study described traditional PDs they had received and discussed other types of PD that utilized technology such as online articles, online modules, and webinars. Of the total 13 participants, six had received minimal online PD, with the other seven having received no online PD, suggesting that online PD was a seldom-used mode of PD for principals. Further, it was found that quality PD has three main components embedded within it. For PD to be of high quality, it needs to be (a) on-going, (b) job-embedded, and (c) connected to school improvement goals on initial learning and continued leadership behaviors of school administrators. Spanneut et al. (2012) conducted a similar study with 273 principals that identified their level of need for PD, as well as their preferred PD delivery methods to receive it. Of all the participants, 33% ranked self-paced online modules as a preferred means of PD delivery and 36% ranked university coursework that was partially online as their preferred means of PD delivery. The findings from these two studies suggest that although school administrators may prefer the use of online learning, many of them are

not engaging in online PD. It is important for more accessible forms of PD (i.e., online PD) that are specifically developed for school administrators to be further examined.

Online Professional Development

Online learning began becoming popular in the mid-2000s and is continuing to become a widely used form of education, with 5.5 million students in the US taking at least one online course in 2012 (Ginder & Stearns, 2014). One attributing factor for the rise in popularity of online education may be recent research that has indicated that traditional workshops often fail to result in significant changes in practice and perception (Terehoff, 2002; Teräs, 2016). For example, the Learning Policy Institute (Darling-Hammond, Hyler, & Gardner, 2017) reported that traditional forms of PD rarely allow learners to connect content to their own experiences. In addition, traditional forms of PD for teachers and school administrators often occur in short one-day workshops that cover a large range of topics; these have been shown to have little impact on teacher practice and student achievement (Guskey, 2002; Guskey & Yoon, 2009).

Online learning allows learning to occur synchronously (i.e., allows learners to engage at the same time as the content is being presented) and asynchronously (i.e., learning occurs without fixed intervals between the presentation of content and learners' responses; Healy, 2015; Moore, 2007). Synchronous learning is commonly used in traditional forms of PD, and allows for opportunities for learners to engage with one another and the instructor in real-time. The use of asynchronous learning within online PD creates an environment that is more flexible and offers personalized learning opportunities (Healy et al., 2016; Hoban et al., 2002; Masters et al., 2010; Moore, 2007).

For example, Teräs (2016) used a narrative analysis approach to examine the learning experiences of seven educators who participated in an asynchronous collaborative online PD program. The online program consisted of a semester-long online course on educational technology and assessment for higher education faculty. The online program was founded on the concept that teachers need to be aware of their teaching approaches and focus on the learners' experiences. The program had the participants engage in on-going discussions with one another, complete modules at their own pace, and develop a project. All seven participants had positive reflections at the end of the online course. The results suggest that while collaborative online PD can be challenging due to the different learning needs, expectations, and preferences of the participants, it can potentially lead to significant professional growth. Indeed, the results further suggest that an online PD setting should emphasize individualized pacing and the development of self-regulation skills (e.g., persistence, self-reflection).

Masters et al. (2010) used a randomized controlled trial to study an online PD's effect on the knowledge and instructional practices of 255 fourth grade English language teachers. The teachers were randomly assigned to an experimental group (i.e., received the online PD) and a control group (i.e., did not receive the online PD). The experimental group participated in three online courses, each requiring about four to six hours of participation per week for seven weeks. The online PD combined independent reading and activities with peer discussions. Data was gathered through a survey on their instructional behaviors, and a pretest and posttest on the specific content from each course. The experimental group received a significant increase in KA compared to the

control group for each course. Studies such as these display that online PD for educators can drastically increase their knowledge in specific content areas.

Little research has been conducted on online learning and in-service school administrators (Bizzell, 2011; Fulton et al., 2018; Nicholson et al., 2005; Spanneut et al., 2012); however, there has been some more in-depth research conducted on online learning with pre-service school administrators and educational leadership programs. Hoban et al. (2002) conducted a study that examined students in an online educational administration program and evaluated whether it was comparable to what students learned in face-to-face classes. Surveys from online students ($n = 11$) were compared to students in face-to-face settings ($n = 125$). Students in both types of courses performed comparably academically and both were generally satisfied with the quality of instruction in their program. In addition, findings showed that students who enrolled in online courses, even if they had concerns, liked the flexibility of the online course and planned to take more online courses.

Duncan (2011) used critical social theory to explore how pre-service and new school administrators can challenge their assumptions about learning and teaching through online dialogue with others in similar professional situations. The online course collected data using interviews and discussion posts from five educational leadership graduate students and the instructor for the course. The findings from the study showed that all of the participants saw value from using an online discussion format to make the content more relevant and productive to leadership practice concepts. Further, it was reported that allowing them to reattempt assignments better utilized the process of learning and

allowed for critical thinking to occur. Flumerfelt (2007) examined if an online educational leadership program can develop student leadership outcomes with 13 educational leadership graduate students, with nine of the students already being in school administration positions. The program was a two-year distance learning school administration degree program, and the driving concept for the development of the online learning environment was to make the lessons relevant to school administrators' practices. Data was collected through discussion board interactions, surveys, writing samples and interviews. The participants reported that the key to their success in the program relied on good online instruction, as well as student-to-student and student-to-faculty interaction. Collectively, these findings show the importance and impact of online learning for school administrators; for example, on-going feedback and discussion posts were some of the strategies that have shown to benefit school administrators. In addition, these findings also highlight the need for quality online learning for this population.

Although little research has been conducted exclusively with in-service school administrators and online PD (Bizzell, 2011; Fulton et al., 2018; Nicholson et al., 2005; Spanneut et al., 2012), a few studies have solely examined in-service school administrators' knowledge and perception changes from online PD. Ertmer et al. (2002) conducted an online PD study with school administrators that examined changes in school administrators' knowledge on technology integration and their perception toward online PD. There were eight administrators enrolled in a semester-long course that participated in 16 discussion forums related to technology. Pre and post surveys revealed

significant changes in their knowledge about technology integration, as well as methods they could use to support teachers to integrate technology effectively into their teaching. Further, interviews and course discussions were used to collect additional data on the administrators' perceptions of the online PD. The data suggested that as the course progressed, administrators gained ideas about what technology integration should look like, as well as how technology might be implemented within various settings. In addition, discussions revealed that the school administrators believed that online PD might be an effective way to increase confidence and knowledge about various topics for other school administrators and educators.

Online learning for special education administrators may be particularly advantageous, as this population has a severe lack of time due to their extensive professional duties (Camburn et al., 2016). Dempsey and Stephens (2011) examined an online special education administrator preparation program in the state of Wisconsin. The program was developed because of the need for additional certified special education administrators in rural areas. Using an online format allowed those who needed licensing for their jobs to be from a range of geographical areas, which otherwise may have proven to be a major barrier. Within the program, the students received courses in the areas of special education law, leadership, and finance. This program was evaluated after four years. Follow-up feedback showed the students had high levels of satisfaction with the program. These findings suggest that using an online learning setting for special education administrators may be effective, especially for those who have geographic barriers to accessing quality face-to-face PD. Although this study examined the impact

of online programs for special education administrators, this study provided an overview of the entire program, rather than offering in-depth details on the specific strategies and tools employed to increase special education administrators' KA. Thus, additional research is needed on specific types of online PD, such as podcasts, that may potentially overcome barriers associated with more traditional forms of PD (e.g., cost, accessibility; Healy et al., 2016) for special education administrators.

Podcasts as Online Professional Development in Education

Vogt (2015) documented that between 2008 and 2015 there has been over a 100% increase in Americans who listened to podcasts. In 2008, only 11% of Americans had listened to a podcast, whereas in 2015 over 33% of Americans have listened to a podcast (Vogt, 2015). Further, in 2008, only 9% of Americans listened to podcasts on a monthly basis, while in 2015 17% of Americans listened to podcasts on a monthly basis. Early research on college student perception of the use of podcasting in classes has been positive; numerous studies have found that students find podcasts to be useful, relevant, and helpful with the overall learning process (Kay, 2012; Luna & Cullen, 2011).

To the best of the investigator's knowledge, there is no research to date to examine the effects of podcasts, validated or non-validated, on school administrators. However, there are a number of studies that have examined the impact of podcasts on a variety of other populations (e.g., undergraduate students, teachers, graduate students; e.g., Healy, 2015; Kennedy et al., 2016b; Luna & Cullen, 2011). For example, Luna and Cullen (2011) conducted an exploratory study that examined 51 nursing and social work graduate students' perception on the use of podcasts in college courses in relation to adult

learning theories. Luna and Cullen (2011) developed the podcasts used in this study through using the adult learning theory of reflective learning (Jarvis, 2002) and the Knowles's (1975) adult learning assumptions. All the participants were given reading assignments to learn content throughout their courses, and for one week were given one podcast to learn new content. Overall, the consensus was that the podcast improved their learning, with some listening to the podcast multiple times. More students (76%) agreed that the podcast enhanced their learning of the content compared to of the students who found the reading assignments to enhance their learning (62%). Luna and Cullen (2011) also revealed that 12% of the students did not find the podcast to be helpful, whereas 32% of the students did not find the reading assignments to be helpful. Lastly, it was found that 75% of the students believed using podcasts to learn new content was a good use of their time, whereas only 65% of the students believed that the reading assignments to learn new content was a good use of their time. These findings show that using podcasts to complement adult learning principles may deepen learners' understanding of content compared to more 'traditional' styles of learning. However, it should be noted that this study did not follow Mayer's (2008) CTML principles to develop the podcasts.

Carlisle et al. (2016) conducted a similar investigation that examined the effects of using a validated CAP to teach 25 special education undergraduates on the topic on language development when compared to another group that read a practitioner-friendly article. Undergraduate students ($n = 50$) were randomly assigned to either the CAP group or a comparison group. The CAP was created using Mayer's (2008) CTML and the 12 accompanying instructional design principles, discussed previously in the introduction.

Furthermore, a fidelity checklist (Kennedy, Hart, & Kellems, 2011) and a design principle checklist (Driver, Pullen, Kennedy, Williams, & Ely, 2014) which had been developed in previous studies were also used to validate the newly constructed CAPs. The CAP was divided into three main sections: (a) definitions of the terms, (b) a statement of purpose, and (c) examples of intervention activities. The CAP was 10-min in length and had three pause points after each main section. During the pause points, the participants were to reflect on the content learned and to take notes if needed. Both groups were instructed to complete a required textbook chapter reading before class and received an expert guest lecture on these topics following the experimental conditions. All the participants were given a pretest and posttest with regard to the materials covered. There were no pretest differences between groups. At the posttest, the CAP group significantly outperformed the comparison group on declarative knowledge and application items in language development, and learned new material on the topic at a faster rate.

Healy (2015) conducted a randomized experimental study to determine the effectiveness of using an online PD course, which included podcasts, to teach 51 PE teachers how to implement peer tutoring into their classes. The experiment group ($n = 27$) participated in the online PD course and the control group ($n = 21$) did not participate in the online PD course. The online course structure was created using the concepts and theory of andragogy (Knowles, 1975). The CTML principles were used for the creation of the tools used in the course and presentations (Clark, Mayer, & Thalheimer, 2003; Mayer, 2008). The study collected data through (a) a pre and posttest on the concepts of

peer tutoring covered in the courses and podcasts; (b) self-report of the teachers' ability to implement peer tutoring; and (c) Buschang's (2012) *Perceptions of Professional Development* survey to assess their perception of the online PD setting. The investigator found that the experimental group had a significant increase in knowledge related to peer tutoring compared to the control group; in addition, the majority of PE teachers positively perceived the online PD setting. This investigation demonstrated how CAPs that are designed and developed using Mayer's CTML and Knowles's adult learning principles can be an effective online learning tool.

CHAPTER III

METHODOLOGY

This study focused on special education administrators and has a threefold purpose to determine: (a) content acquisition podcasts (CAPs) effect on special education administrators' knowledge acquisition (KA) of adapted physical education (APE) content; (b) special education administrators' perceptions of CAPs for professional development (PD) purposes; and (c) whether or not the special education administrators' school district employment of an APE teacher impacts their KA and perceptions of CAPs. This investigation was divided into two distinct phases. Phase I is the formation of the CAPs and Phase II is the intervention and data collection.

Phase I: Formation of Content Acquisition Podcasts

Development of Content Acquisition Podcasts

One form of PD that have been shown to be an effective delivery of instruction on a variety of topics (e.g., learning disabilities; Kennedy, Newton, Haines, Walther-Thomas, & Kellems, 2012; inclusive PE; Healy, 2015) has been CAPs, which are podcasts that embed evidence-based instructional design principles to package and deliver critical content (Kennedy et al., 2015). These previous investigations, as well as the theory of andragogy (Knowles, 1975) and the cognitive theory of multi-media learning (CTML; Mayer, 2008), were used to develop three separate CAPs for the current investigation. Three steps were used to create validated CAPs for this investigation: (a) developing the content topics through surveying APE experts, (b) developing the objectives and

transcripts with APE-expert feedback, and (c) applying the theories to the CAPs with theory-expert feedback; see Table 3.

Table 3

Three Validation Steps for Content Acquisition Podcasts

(1) Develop Content	(2) Develop Transcripts	(3) Apply Theories to CAPs
-14 potential topics identified -APE experts were surveyed on the topics -Guiding question focused on what content gave special education administrators knowledge to supervise APE	-Investigator developed objectives and transcripts -Investigator's advisor gave feedback on the objectives and transcripts -APE experts gave feedback on objectives and transcripts	-Theory-experts watched video explaining the CTML -Theory-experts reviewed and gave feedback on how well the CTML were applied to each CAP

Topic identification. The first step in creating the CAPs was to identify the content. The guiding question to develop the content was, “What content would effectively give special education administrators the knowledge needed to supervise and monitor APE programming for students with disabilities?” Fourteen topics were identified using the previous literature that has identified key issues in the field of APE (Columna et al., 2014; GAO, 2010; Hays et al., 2011; Krueger, DiRocco, & Felix, 2000; Rizzo, 2013; Tripp & Zhu, 2005). A five-point Likert scale survey was used to ask each APE expert to rank the topics they believed were most important, on a scale from one (i.e., not important) to five (i.e., very important), for special education administrators to understand and apply to effectively supervise and monitor APE programing. The 14 topics identified were (a) the federal law specific to PE for students with disabilities (GAO, 2010; IDEA, 2004); (b) how PE teachers should be included in the IEP process (Columna et al., 2014; Krueger et al., 2000); (c) the PE curriculum and APE teachers role

in the development of the curriculum (Hays et al., 2011; Tripp & Zhu, 2005); (d) effective teaching behaviors for APE teachers (GAO; Rizzo); (e) inclusion in PE (GAO, 2010; Rizzo, 2013); (f) assessment of motor behavior (Rizzo, 2013; Tripp & Zhu, 2005); (g) transition services (Krueger et al., 2000; Rizzo, 2013); (h) response to intervention in APE (Rizzo, 2013); (i) certification and qualifications of APE teachers (Rizzo, 2013); (j) behavior management (Rizzo, 2013); (k) accessible facilities and appropriate equipment (GAO, 2010; Rizzo, 2013); and, (l) sports and extracurricular activities (GAO, 2010).

There was also an open-ended portion of the questionnaire for the APE experts to specify additional areas not already identified that they believed to be essential for special education administrators to understand. The topic selection survey was delivered at the NCPEID national conference to 15 APE higher education professionals and APE teachers. Next, a second survey was developed using the same Likert scale and directions from the initial topic selection survey, but it only included the five highest ranked topics from the previous survey. The more refined topic selection survey was then sent to nine nationally certified APE teachers via email. The top three ranked topics were used to create the content of three separate CAPs (Healy, 2015).

Content development. Subsequently, specific learning objectives were developed for each CAP that involved the topics identified from the initial topic selection panel (see Appendix C). The APENS (Kelly, 2008) was used to develop the objectives for each topic. To validate the objectives, a three-step process occurred. First, the primary investigator developed three objectives for each CAP. Next, the investigator's primary

advisor reviewed the objectives and through discussion, a consensus was reached on the specific wording and focus. Lastly, the objectives for each topic were sent to APE experts (i.e., APE higher education professionals and APE teachers) through the primary investigators' advisor in order to keep the confidentiality of the experts. Eleven of the APE experts were the same as those from the initial topic selection APE expert panel, while three additional APE experts were recommended through the investigator's dissertation committee members. The APE experts were asked to use a five-point Likert scale (1 = *not important*, 5 = *very important*) to give their perspective on the importance of each learning objective for each topic. In addition, the APE experts were asked whether they believe there are other objectives that they think are necessary to fulfill the needs of special education administrators. A rating of two or less resulted in using the APE experts' feedback to make edits to the objectives, after which the revised objectives were sent to the APE experts for another round of feedback; this process occurred twice before all of the objectives were agreed upon by all parties.

To develop validate the transcript for each CAP, a very similar process to the objective validation process were conducted. First, the investigator developed transcripts to be used in each CAP that presented information focused on the previously determined objectives within approximately 10 minutes, as to adhere to the CTML principles (Mayer, 2008; see Appendix D). Second, the investigator's primary faculty advisor read the transcripts, and through discussion, a consensus was reached on the specific content and verbiage. Third, and finally, each transcript along with a validation survey were sent to two APE experts who had conducted research or had experience in the area of the content

that the transcript focused on. For example, the transcript that focused on federal laws and APE was sent to experts who had either conducted research pertaining federal laws and APE, or had practical experience with ensuring compliance with federal laws. The transcript surveys were sent through the primary investigator's advisor to validate that the content of the CAPs aligned with the previously established objectives. Each transcript was divided into two or three sections, with each section focusing on a specific area that related to the topic. For example, within the transcript that focused on federal laws and APE, one section focused on how IDEA (2004) effects APE.

In all, seven APE experts reviewed the transcripts, more specifically three reviewed the transcript that focused on teaching practices, two reviewed the transcript that focused on inclusion and LRE, and two other APE experts reviewed the transcript that focused on federal laws. APE experts were asked for their expertise on two items: (a) the content script for each CAP and (b) how well the transcript content related to the identified objectives. There was also an open-ended portion of the questionnaire for the experts to elaborate on their feedback. The APE experts were asked to identify other objectives and areas related to each CAP's topic that they deemed necessary to include. The APE experts evaluated each item using a five-point Likert scale. A rating of two or less resulted in using the APE experts' feedback to make edits to the transcripts, after which the transcript were sent to the APE experts for another round of feedback; this process only needed to occur once before all of the transcripts were agreed upon by all parties.

Applying the theory of andragogy. The andragogy theory of adult learning was used as a theoretical foundation for the online PD design. Specifically, Knowles's (1975)

four principles of adult learning were used to guide the design of the CAPs and the instructional cues given in PsychData. Knowles's adult learning principles were used because they have demonstrated to be successfully integrated into other adult education online courses (e.g., Healy, 2015; Quinney et al., 2013). To ensure adults were able to apply their experiences to the CAPs and to make the CAPs more relevant, the learners (i.e., special education administrators) were given a prompt prior to listening to each CAP to encourage them to think about a PE teacher in one of their schools who they believed they could collaborate with and guide to develop a more effective PE program for students with disabilities.

To ensure meaningful learning and autonomy for the learners, a variety of strategies were offered throughout the CAPs, and the special education administrators were able to choose what strategies to use in their current situations. For example, although the intervention provided many strategies that a special education administrator can use to include the PE teacher in the IEP process, the special education administrators has the ability to choose which strategies they could incorporate to increase PE teacher participation in the IEP process. The participants were involved in the evaluation process through the use of the *Perceptions of Professional Development* survey (Buschang, 2012) to rate the effectiveness of the PD at the end of the entire session. In addition, the PD was implemented to be flexible and available all at once; this allowed the special education administrators, within a two-week timeframe, to choose when to complete the listening of each CAP in its entirety. Although the learners were involved in the evaluation of the intervention, the learners were not be involved in the planning and design of the

intervention and the CAPs, as literature and expert feedback were the primary factor considered while planning and designing the intervention and the CAPs.

Knowles's (1975) second and third principles relate to the importance of experience for adult learners and the need for the learning to be relevant to their professional and personal lives. This principle underlies the design of the online PD. Prior to listening to the CAPs, the learners were prompted in PsychData to reflect on their experiences and challenges with regard to PE programming for students with disabilities. Identifying experiences and challenges increases the learners' motivation and focus. For example, before listening to a CAP on the topic of federal laws and PE, a prompt appeared online and asked the participants to, "Think about the different placement options your school offers with regard to PE while you listen to this CAP. " After listening to each CAP, learners were prompted to reflect on how the CAP related to PE programming within their schools. For example, a reflective prompt given was, "After listening to the CAP on federal laws and PE, reflect and identify how you could incorporate more PE placement options within your school". However, in relation to Knowles's second and third principles, special education administrators who oversee APE programs has a lot more experience and the ability to make the content relevant to their professional lives compared to special education administrators who do not oversee APE programs. Furthermore, during the duration of this intervention, many of the learners did not have the opportunity to put the information learned into action in a meaningful way in their professional lives, as this is a short-term online program.

According to Knowles (1975), the final principle of adult learning is that curricula should be problem-centered and related to real-life scenarios. To fulfill this principle, the CAPs offered special education administrators strategies to overcome problems that have been identified in the literature related to PE programming with students with disabilities. For example, the CAPs have discussions that cover in-depth the different LRE placement options in a PE setting and how these could be implemented in different ways in a multitude of settings (Decker & Jansma, 1995). It should be further noted that special education administrators who do not oversee APE programs might not be able to relate the information within the CAPs to their own professional scenarios; however, from listening to the CAPs, they should have the preliminary knowledge and an increased motivation to develop an APE program within their district.

Applying the Cognitive Theory of Multimedia Learning. Knowles's (1975) theory of adult learning provided guiding principles for the online PD. However, specific design principles were applied to the CAPs to develop multimedia presentations that effectively presented information to the learners. This is essential, as the presentation of content, not simply the content, is imperative for effective learning and use of multimedia (Mayer, 2008). Mayer's (2008) principles provided structure for the development and presentation of the CAPs. Healy (2015) used the same guiding principles when developing peer-tutoring podcasts for PE teachers. Healy's (2015) investigation revealed that listening to podcasts resulted in a significant increase in knowledge for PE teachers compared to PE teachers who did not complete the online PD course, as well as the PE teachers; the PE teachers perceived the online environment as a positive setting for PD.

In accordance with Mayer's (2008) theory, 12 evidence-based principles were used to reduce extraneous stimuli, manage essential processing, and foster generative processing. The five principles to be used to engage the learners and to reduce extraneous stimuli to enhance the learning process are: (a) the coherence principle, the removal of extraneous words, pictures, and sounds; (b) the redundancy principle, enables people to learn better from animation and narration; (c) the signaling principle, the organization of the presentation should include cue words to serve as headings that help give an overview of the separate topics; (d) the spatial contiguity principle, connected words and pictures should be presented near one another; and, (e) the temporal contiguity principle, connected words and pictures should be presented simultaneously. To ensure successful management of essential processing and that the content is presented in a format that maximizes cognitive processing, three principles were used: (a) the segmenting principle, which explains that learning is enhanced when a multimedia lesson is presented in segments; (b) the pre-training principle, which explains that learning is enhanced when learners know the names and characteristics of the main concepts; and (c) the modality principle, explains that learning is enhanced when pictures and narration are combined. Lastly, to ensure successful generative processing three principles were used to help the learner process the multimedia: (a) the personalization principle, explains that people learn best when information is presented in informal speech with a conversational style; (b) the voice principle explains that people learn better from a human voice with a local accent; and (c) the multimedia principle explains that people learn better through words and pictures presented together.

Content Acquisition Podcasts Review Process

After the transcripts were finalized and visuals were added, the investigator recorded the three separate CAPs. To ensure the application of the principles of the CTML (Mayer, 2008), two theory-experts provided feedback on each CAPs. Reviewers first watched a training video on Vimeo© on how to apply the principles of the CTML. Examples of the principles were provided in the video. In addition, the theory-experts attained at least an 80% on a 12-item investigator-developed CTML test to ensure the theory-experts understood the CTML. With regard to reviewing the CAPs' adherence to the CTML, the theory-experts used a design principle checklist that was specifically designed by Driver et al. (2014) to validate CAPs' adherence to the 12 principles within the CTML (see Appendix E).

Once the CAPs were ready to be listened to by the participants, they were uploaded to PsychData, which was made available through the primary investigator's university. PsychData gave participants access to instructions on how to listen to the CAPs and assessments. The CAPs were uploaded to a private YouTube channel. At the end of each CAP, there were reminders to go back to PsychData for the directions for the next step. After every two to three minutes, each YouTube video of a CAP ended prior to the next key point on the topic being discussed, which aligns with the CTML (Mayer, 2008). Further, PsychData gave prompts before and after listening to each section of each CAP to promote reflection and apply the information to real-life situations.

Phase II: Intervention

Participant Recruitment

Purposive sampling was used to recruit special education administrators to participate in this investigation. Recruitment occurred through an emailed invitation to the 706 special education administrators on the Texas Education Agency's list-serve for the 2017-2018 academic school years (see Appendix F). All participants were incentivized to join and completed all aspects of the study. The first 10 participants who completed the intervention and all the components of data collection received a \$30 Amazon gift card. An additional 15 participants who completed the intervention and all components of data collection were entered in a raffle to win a \$15 Amazon gift card. In addition, in the email it was explained that the participants should then be given a two-week period to listen to all three CAPs on APE services. The email also included a link to access PsychData. Within PsychData, there were directions for the participants to guide them through the requirements for the study. In addition, there were links to the surveys, the tests, and the CAPs. Potential participants were asked to complete an online eligibility criteria questionnaire to ensure they met the inclusion criteria for the study, prior to being able to begin the interventions. Inclusion criteria included (a) being a current special education administrator, (b) having a valid administrator's license in Texas, and (c) having at least three years of experience as a special education administrator.

Research Design and Procedures

This investigation used a quasi-experimental design. The investigator evaluated the effects of CAPs on special education administrators' KA regarding how to effectively

monitor and supervise APE programming for students with disabilities. In addition, the investigator examined the participants' perceptions of CAPs as a PD tool. Prior to participating in the intervention, participants received an email containing access to PsychData, which contained the informed consent and a demographics survey. If the potential participants chose to be involved in the investigation, they were prompted to take the demographics survey. The demographics survey gathered information concerning the participant's job and their school district. Further, the survey asked if they have APE teachers they supervise, and if so, how many of them they supervise.

After the participants filled out the demographics survey, they were given instructions to complete an APE pretest, which was based on the APENS (Kelly, 2008). Following the time given for the participants to listen to the CAPs, they were given a follow-up APE posttest, which covered similar content knowledge given in the pre-test. The participants also completed a post-intervention survey on their perceptions of PD. Lastly, three weeks after the intervention was concluded, the participants completed a content knowledge retention test; see Table 4 for further information on the research procedures.

Table 4

Research Procedures

- Step 1: Initial email that contains the informed consent form and a link to PsychData.
 - Step 2: Within PsychData, participants completed a demographics survey and a knowledge pretest on APE content.
 - Step 3: Participants listened to and engaged with all three CAPs within a two-week period, they also took a perceptions survey after listening to each CAP.
 - Step 4: Participants took a post knowledge test and a post perceptions survey after completing the intervention.
 - Step 5: Three weeks after the intervention, the participants took a retention knowledge test.
-

Data Collection

Three measures were administered to participants in this study. Information collected from special education administrators included a: (a) demographics survey, (b) pre, post, and retention test of content knowledge, and (c) a post-intervention survey on the perceptions of PD. The following section describes each of the data collection tools.

Demographics Test

Prior to the study, the participants took a demographics survey (see Appendix G). This survey included typical demographic information, such as age and gender. It also included questions specific to professional experience and education, such as the total number of years in administration, whether they have APE teachers in their schools and the amount of APE teachers currently in their schools, and college degree(s) held.

Content Knowledge Test

A pretest, posttest, and retention content knowledge test were administered to all participants (see Appendix I). Each of the tests used 21 multiple choice questions that were taken from a pool of 53 questions, with seven questions dedicated to each of the three previously identified topics, at varying levels of difficulty. The participants were asked not to use outside resources to answer these items. The pretest was completed after the demographic survey was completed, and was the last data component the participants completed prior to engaging in the intervention. The posttest was completed after the entire intervention was completed. The retention test was taken three weeks after the completion of the intervention, and the participants had one week to complete the test. In addition, the pretest and retention test had 11 identical questions. All of the tests were

developed through creating 53 test items based on the three APE topics selected for the CAPs. The test items were validated by an expert group ($N = 4$) who formed a committee that oversaw the validation of a revised APENS exam. For each test item, the expert group was asked to evaluate based on the statement “The above question and answer set are effective in assessing special education administrators.” The expert group used a five-point Likert scale to evaluate the effectiveness of each question, with one representing strongly disagree and five representing strongly agree. An *a priori* criterion of three was set, meaning a score of greater than or equal to three meant that the test item was deemed effective. The expert group was also asked to provide feedback on questions that did not meet the set criterion (Healy, 2015).

The test questions were pilot tested with 11 educational leadership graduate students to determine the difficulty and reliability of the questions. The difficulty of the questions was based off the graduate students’ scores, with each question categorized as basic, challenging, or very challenging. The difficulty of the test questions was determined through using a test item discrimination analysis from software provided by Blackboard®. Test items that had a discrimination score of .1 or less and had a low internal consistency coefficient ($< .5$) when paired with the other test items were eliminated from the test bank. The internal consistency coefficient was also used to determine the quality of the test items, as it has been reported that when conducting an item discrimination analysis with a small sample size, the item analysis should not be the sole instrument used to determine the quality of the test items (McGahee & Ball, 2009).

Each topic within each test had approximately the same amount of questions based on the difficulty of the test items.

For example, if Topic One of the pretest has two basic questions, four challenging questions, and two very challenging questions, then topic one of the posttest may have two basic questions, three challenging questions, and three very challenging questions. Kuder-Richardson 20 (KR20) coefficients were used to determine the internal consistency of the test items (Kuder & Richardson, 1937; the total test = .78; pretest = .56; posttest = .55; retention test = .66). KR20 was used to determine internal consistency rather than Cronbach's Alpha as the test items were dichotomous. In addition, it has been reported that reasonable values for KR20 coefficients range between .5 and .8 (McGahee & Ball, 2009). Bivariate correlation analyses were also used to determine parallel reliability between the pre, post, and retention tests. All of the tests had a significant correlation between one another (pretest and posttest, $p = .04$; pretest and retention test, $p = .002$; posttest and retention test, $p = .003$).

Perceptions of Professional Development Survey

The participants completed an adapted version of the *Perceptions of Professional Development* survey after each CAP was listened to, as well as after the entire intervention was completed to gather their perception on the effectiveness of the CAPs as a PD tool (Buschang, 2012; see Appendix H). The surveys completed after each CAP had eight questions. Five of the questions used a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*), which asked them to rate how much they agreed with given statements about different components (e.g., effectiveness, interest level) of the CAPs.

For example, one statement was, “This podcast was helpful,” and another statement was “This podcast was interesting.” In addition, the perception surveys given after each CAP had two open-ended questions pertaining to what they enjoyed about the CAP.

There was also a post-intervention perceptions survey which asked 11 questions with regard to their PD. Within the post-perceptions survey six of the questions used a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) which asked them to rate how much they agreed with given statements about different components (e.g., effectiveness, interest level) of the PD as a whole. There were also five open-ended questions pertaining to subjects such as how to improve the CAPs and which CAP they enjoyed the most. For data analysis purposes, the given answer for the first question on the post-intervention perception survey, “How would you rate your overall experience with the entire online professional development program?” was used as the participants’ overall score for their perceptions of the CAPs as a PD tool. The purpose of the perceptions surveys was to elicit participants’ perceptions of the effectiveness of their PD experience, if goals of the PD were met, how serious the participants took the PD, and the perceived strengths and weaknesses of the PD session (Buschang, 2012).

Data Analysis

The descriptive statistics were analyzed for all of the demographic information. Multiple ANOVAs and Pearson’s correlations were used to analyze selected data. Cohen’s *d* values are reported as effect sizes, with values interpreted as small (0.0 - 0.2), medium (0.3 - 0.5), and large (greater than 0.6; Cohen, 1988). The alpha level for all

analyses was set at .05. The data analysis has been divided by the four previously discussed null hypotheses:

1. There will be no significant change in content knowledge scores between the tests (pretest, posttest, retention test), for special education administrators. A repeated measures ANOVA was used to analyze whether there were any significant differences in the special education administrators' test scores between the three tests. In addition, of the participants who only completed the pretest and posttest, an additional repeated measures ANOVA was used to determine whether there was any significant differences in the special education administrators' test scores between the pretest and posttest. Sidak *post-hoc* tests were used to detect any the source of significant differences.
2. There will be no significant interaction between the special education administrator's school district employment of APE teachers and the change in their content knowledge scores between the tests (pretest, posttest, retention test). A 2 x 3 mixed factorial ANOVA was used to examine the interaction between the participants' school district employment of APE teachers and the CAPs' effects on their KA (pretest, posttest, retention test). In addition, of the participants who only completed the pretest and posttest, a one-way ANOVA was used to examine the interaction between the participants' school district employment of APE teachers and the CAPs' effect on their KA (pretest, posttest). Sidak *post-hoc* tests were used to detect the source of significant interactions.

3. There will be no significant effect of the special education administrator's school districts employment of APE teachers on their perception of the CAPs. A one-way ANOVA was used to analyze whether their school district employing APE teachers had an impact on how they perceived the effectiveness of the CAPs.
4. There will be no significant correlation between the special education administrators' perception of the CAPs and the change in their content knowledge scores from pretest to posttest, nor posttest to retention test. Two Pearson's correlation analyses were used to test this null hypothesis. Pearson's correlation analyses were used to analyze how administrators' post-intervention perception of the PD associate with their KA. The first Pearson's correlation analysis was used to analyze whether special education administrators' post-intervention perceptions had an association with knowledge change between their pre-knowledge and post-knowledge scores from the CAPs intervention. The second Pearson's correlation analysis was used to analyze whether special education administrators' post-intervention perceptions had an association with their knowledge change between their post-knowledge and retention of knowledge scores from the CAPs intervention.

CHAPTER IV

RESULTS

The purpose of this investigation was to determine: (a) content acquisition podcasts (CAPs) effect on special education administrators' knowledge acquisition (KA) of content related to APE services; (b) special education administrators' perceptions of CAPs for professional development (PD) purposes; and (c) whether or not the special education administrators' school district employment of an adapted physical education (APE) teacher impacts their KA and perceptions of CAPs. A quasi-experimental design was used to determine whether to reject or fail to reject each of the investigation's null hypotheses. The data presented within this chapter are organized into three sections: (a) demographics; (b) content knowledge test results; and (c) perceptions of the PD and CAPs.

Demographics

Based on G*POWER (Faul, Erdfelder, Buchner, & Lang, 2009) calculations with power acceptable at .80, the current investigation had a target sample of 34 participants for an upper-moderate effect size. A total of 706 special education administrators were invited by email to participate in this intervention. In this study 29 special education administrators ($n = 2$ males, $n = 27$ females) participated in the entire intervention and completed the pretest and posttest; however only 21 ($n = 2$ males, $n = 19$ females) completed the retention test. Unless otherwise noted, the data from the 29 participants will be discussed in this section. An additional 34 potential participants began the

intervention, hereafter referred to as the online PD, but were excluded because they failed to complete the posttest. Further, seven potential participants, who completed the online PD and the pretest and posttest, were excluded because they did not meet the inclusion criteria. The participants' ages ranged from 32 to 70 years, with a mean age of 50.50 ($SD = 9.27$). Their years of experience as a special education administrator ranged from 3 to 29, with a mean of 10.31 ($SD = 5.49$). With regard to their highest level of education attained, 79% ($n = 23$) held a master's degree, 17% ($n = 5$) held a doctorate degree, and 3% ($n = 1$) held a bachelor's degree. Sample demographic statistics are displayed in Table 5.

Demographic information for the participants' school districts varied greatly. The number of students within the participants' school districts ranged from 105 to 66,000 ($M = 8,897.31$, $SD = 13,979.44$). In addition, the number of students who received special education services ranged from 20 to 6,000 ($M = 810.52$, $SD = 1,244.47$), with an average of 9% of the students receiving special education services. Information about the participants' school districts is displayed in Table 6.

Table 5

Sample Demographics

	Sample Characteristics	Frequency (Percentage)
Gender	Male	2 (7%)
	Female	27 (93%)
Years as a SEA	3-7	13 (45%)
	8-12	9 (31%)
	13-17	2 (7%)
	18 and above	4 (14%)
Ethnicity	White	20 (69%)
	African American	4 (14%)
	Native American	2 (7%)
	Hispanic/Latino	1 (3%)
	Other/Not Reported	2 (7%)
Age*	30-40	5 (17%)
	41-50	8 (28%)
	51-60	10 (35%)
	61-70	5 (17%)
Highest Degree	Bachelor Degree	1 (3%)
	Master Degree	23 (79%)
	Doctorate Degree	5 (17%)

Note. SEA = Special education administrator, * = some data was not reported by the participants.

Table 6

School District Information

Sample Characteristics		Frequency (Percentage)
Students Receiving SPED*		
	20-100	3 (10%)
	101-200	5 (17%)
	201-300	3 (10%)
	301-400	3 (10%)
	401-500	1 (3%)
	501-600	1 (3%)
	601-700	2 (7%)
	701 and above	8 (28%)
Students Receiving APE		
	0-20	17 (59%)
	21-40	3 (10%)
	41-60	3 (10%)
	61 and above	6 (21%)
Amount of APE Teachers		
	0	10 (35%)
	1-2	11 (38%)
	3-4	2 (7%)
	5-6	2 (7%)
	7 and above	4 (14%)

Note. APE = Adapted physical education; SPED = Special education; * denotes that some data was not reported by the participants.

A majority of the participants (66%, $n = 19$) reported having at least one APE teacher employed within their district. To note, 13.8% of participants ($n = 4$) also indicated they did not have APE services available in their school districts. Most commonly the participants worked at public school districts (93%, $n = 27$), and two other participants worked at charter schools (7%). For the special education administrators with APE

teachers in their district the number of students receiving APE services ranged from 3 to 800 ($M = 94.53$, $SD = 185.32$), with 1 student receiving APE services for every 12.65 students receiving special education services. The number of APE teachers employed within the participants' districts ranged from 1 to 65 ($M = 7.29$, $SD = 14.84$); with an average caseload of 1211.96 students per APE teacher. When the school demographic data were sorted by those with and without APE teachers in their district, it appears that the special education administrators with APE teachers in their districts work in larger school districts ($M = 12,814.06$, $SD = 16,743.25$) compared to the special education administrators without APE teachers in their districts ($M = 7,400$; $SD = 2,631$).

When asked about their prior experience with PD related to APE, 19 (66%) special education administrators ($n = 19$) reported having no previous training specific to APE. In addition, 28 participants (97%) reported receiving PD in an online setting prior to this intervention. Furthermore, 17 (59%) special education administrators reported listening to podcasts for PD purposes and 19 (66%) also reported listening to podcasts for recreational purposes.

Content Knowledge Test Results

Research Question 1

A repeated measures ANOVA was used to determine whether there was a significant difference between the pretest and posttest scores for all 29 participants. A significant difference between the two test scores was found, $F(1, 28) = 4.26$, $p = .049$, $d = .13$. Cohen's d effect size value suggests a small effect size. The participants' posttest scores ($M = 46.3\%$, $SD = 2.93$) were significantly higher than their pretest scores ($M = 39.1\%$,

$SD = 2.30$). See Table 7 for a summary of the results for the repeated ANOVA measures for only the pretest and posttest comparison. Note that each test was comprised of a total of 21 possible points.

Table 7

Pretest and Posttest Content Knowledge Test Comparison

Test Comparisons	Mean Difference	Std. Error	<i>p</i> value
Pre v Post	-1.52*	.74	.049

Note. * = $p < .05$, M = Mean, SD = Std. = Standard, p = Significance.

As stated previously, only 21 of the 29 total participants completed all of the data components, including the retention test. A repeated measures ANOVA was used to determine whether there was a significant difference between the knowledge change across the three tests (i.e., pretest, posttest, and retention test). A significant difference was found between the three test scores, $F(2, 40) = 7.49$, $p = .002$, $d = .27$. Cohen's d effect size value suggests a small to medium effect size. Sidak *post-hoc* tests were used to detect the source of significant differences. The participants' pretest scores ($M = 39.5\%$, $SD = 2.45$) were not found to be significantly lower than the participants' posttest scores ($M = 47.1\%$, $SD = 2.81$; $p = .24$); nor were the pretest scores significantly lower than the retention test scores ($M = 33.3\%$, $SD = 1.53$, $p = .13$). However, the posttest scores were found to be significantly higher than the retention test scores, $p = .002$. Thus, the null hypothesis that there would be no significant change in content knowledge scores across the tests for the special education administrators was rejected. See Table 8 for a summary of the results of the repeated measures ANOVA for the pretest, posttest, and retention test comparisons.

Table 8

Pretest, Posttest, and Retention Test Comparisons

Comparisons	Mean Difference	Std. Error	<i>p</i> value
Pretest v. Posttest	-1.62	.90	.236
Pretest v. Retention Test	1.29	.61	.133
Posttest v. Retention	2.91*	.73	.002

Note. * = $p < .05$, M = Mean, Std. = Standard, p = Significance.

A Pearson's correlational analysis was used to determine the relationship of the different demographic variables on the participants' KA change (i.e., posttest minus pretest scores). The only variable that was found to be significantly correlated with the KA change was whether the participants had APE services available in their districts ($p = .038$, $r = -.39$). Several other demographic variables, collected in the initial demographics survey, were found to be significantly correlated ($p < .05$; see Table 9).

Table 9

Correlation Summary

Variable	1	2	3	4	5	6	7	8	9	10	11
1. KA Score	—										
2. Gender	-.03	—									
3. Age	-.23	.29	—								
4. Years as a SEA	-.26	.12	.41*	—							
5. Ethnicity	-.10	.16	-.24	-.13	—						
6. Level of Education	-.12	.40*	.24	.09	.09	—					
7. SPE Students	.007	—	.03	.15	.36	.29	—				
8. APE In District	-.39*	.10	-.22	-.08	-.25	-.13	-.34	—			
9. APE Teachers	.09	-.50**	-.32	-.13	-.06	-.07	.42*	-.07	—		
10. APE Students	.29	-.87**	-.23	-.05	-.13	-.38*	.55**	-.16	.51**	—	
11. Prior Training in APE	.17	.09	-.20	-.02	-.02	-.10	-.31	.08	-.03	-.24	—

Note. * = $p < .05$; ** = $p < 0.001$; KA = Knowledge acquisition; SEA = Special education administrator; SPED = Special education; APE = Adapted physical education.

Research Question 2

A 2 x 2 mixed factorial ANOVA was used to examine the interaction between the participants' school district employment of APE teachers and the impact of CAPs on their KA from pretest to posttest, with participants categorized into two groups: special education administrators with APE teachers in their district (66%, $n = 19$), and special education administrators without APE teachers in their district (35%, $n = 10$). No significant difference was found between special education administrators with and

without APE teachers employed in their districts, $F(1, 27) = .035, p = .853$. In addition, no significant difference was found between the knowledge change from pretest to posttest, $F(1, 27) = 2.67, p = .121$. No significant interaction was found between the participants' knowledge change from pretest to posttest and whether or not they had APE teachers in their districts, $F(1, 27) = 1.47, p = .237$. See Table 10 for a summary of the descriptive variables for the pretest and posttest, sorted by group (i.e., those with and without APE teachers employed in their districts). See Table 11 for a summary of the pretest and posttest inferential statistics, sorted by group.

Table 10

Pretest and Posttest Descriptive Statistics by Group

Group	Test	Mean	SD	N
APE Teachers	Pretest	7.84	1.95	19
	Posttest	10.00	2.94	
No APE Teachers	Pretest	8.90	2.85	10
	Posttest	9.20	2.93	

Note. SD = Standard deviation, N = Number of participants.

Table 11

Pretest and Posttest Inferential Statistics by Group

Source	df	MS	F	p	Effect
Within:					
Test (A)	1	19.79	2.565	.121	.087
Error	27	7.72			
Between:					
Group (B)	1	.22	0.35	.853	.001
Error	27	6.25			
A x B Interaction	1	11.31	1.466	.237	.051

Note. . df = Degrees of freedom, MS = Mean square, F = F value, p = Significance.

A separate 2 x 3 mixed factorial AVOVA was used for the 21 participants who completed the retention test, which only contained 8 participants without APE teachers employed in their school districts. No significant difference was found between special

education administrators with and without APE teachers employed in their districts, $F(1, 19) = .089, p = .768$. However, there was significant knowledge change differences between the test three tests, $F(2, 38) = 6.78, p = .003, d = .26$. Cohen's d effect size value suggests a small to medium effect size. When data were analyzed by Sidak *post-hoc* tests to detect the source of the significant differences the participants' pretest scores ($M = 40\%, SD = 2.45$) were not found to be significantly lower than the participants' posttest scores ($M = 47.1\%, SD = 2.81; p = .35$); nor were the pretest scores found to be significantly lower than the retention test scores ($M = 33.3\%, SD = 1.52, p = .10$). However, the posttest scores were found to be significantly higher than the retention test scores, $p = .004$. No significant interaction was found between knowledge change across the three tests and whether they had APE teachers employed in their district, $F(2, 38) = 0.34, p = .691$. Thus, the null hypothesis that there would be no significant interaction between the special education administrators' school district employment of APE teachers and the change in their test scores, was not rejected. See Table 12 for a summary of the descriptive data for the three tests, sorted by group. See Table 13 for a summary of the pretest, posttest, and retention test inferential statistics, sorted by group.

Table 12

Descriptive Statistics for Pretest, Posttest, and Retention Test by Group

Group	Test	Mean	SD	N
APE Teachers	Pretest	7.92	2.06	13
	Posttest	10.00	2.74	
	Retention test	7.08	1.80	
No APE Teachers	Pretest	8.88	3.04	8
	Posttest	9.75	3.11	
	Retention test	6.88	1.13	

Note. SD = Standard deviation, N = Number of participants.

Table 13

Pretest, Posttest, and Retention Test Inferential Statistics by Group

Source	<i>Df</i>	MS	<i>F</i>	<i>p</i>	Effect
Within:					
Test (A)	2	41.63	6.79	.003	.27
Error	38	6.13			
Between:					
Group (B)	1	.413	.089	.769	.01
Error	19	4.63			
A x B Interaction	2	2.29	.374	.691	.02

Note. . *df* =Degrees of freedom, MS =Mean square, *F* = F value, *p* = Significance.

Perception of Content Acquisition Podcasts

Research Question 3

The *Perceptions of Professional Development* survey (Buschang, 2012) was given to participants each time they finished listening to a CAP and after they completed the entire online PD. After listening to each CAP, participants responded to six five-point Likert scale statements and two open-ended questions related to their usefulness and satisfaction. After the completion of the online PD, participants responded to 6 five-point Likert scale statements and five open-ended questions related to the perceived usefulness of and satisfaction of the entire PD. Results from the final *Perceptions of Professional Development* survey show that overall perceptions were overwhelmingly positive, with the participants rating the entire PD as excellent (41%, $n = 12$), good (48%, $n = 14$), or average (10%, $n = 3$). In addition, the participants agreed or strongly agreed that the content in the podcasts were useful (90%, $n = 26$), and was an effective tool to deliver PD (86%, $n = 25$), and that they would recommend the podcasts to a colleague (86%, $n = 25$). A vast majority of the participants (83%, $n = 24$) also agreed or strongly agreed that the CAPs contained strategies that they could use in their professional lives and that they

enjoyed the podcasts. A full overview of the participants' perceptions of each CAP and the entire online PD are presented in Table 14.

Across the four survey administrations, 11 open-ended questions were used to gain a more in-depth understanding of the participants' perception of the online PD. Within the first three perception surveys, the participants were asked to explain what they liked most and least about each CAP. The last perception survey asked the participants what they liked most and least about the entire online PD. Table 15 displays the themes gathered from the participants' responses from the open-ended portion of the perception surveys delivered after each CAP. Table 16 displays the themes gathered from the participants' responses from the open-ended portion of the perception surveys delivered at the completion of the online PD.

Table 14

Participants' Perceptions

CAP Topic	Perception Question	Mean Score (SD)
Inclusion and LRE	Overall experience	4.14 (.53)
	Content was useful	4.32 (1.06)
	Recommend to colleague	4.18 (1.06)
	Use strategies in professional life	4.04 (1.07)
	Enjoyed the podcast	4.07 (1.09)
	Podcast is an effective way to deliver PD	4.29 (1.05)
Federal Laws and APE	Overall experience	4.04 (0.70)
	Content was useful	4.32 (1.06)
	Recommend to colleague	4.18 (1.10)
	Use strategies in professional life	4.04 (1.10)
	Enjoyed the podcast	4.04 (1.07)
	Podcast is an effective way to deliver PD	4.11 (1.10)
APE Teaching Practices and Roles	Overall experience	4.25 (0.65)
	Content was useful	4.39 (1.07)
	Recommend to colleague	4.29 (1.05)
	Use strategies in professional life	4.21 (1.10)
	Enjoyed the podcast	4.14 (1.08)
	Podcast is an effective way to deliver PD	4.21 (1.06)
Entire Online PD	Overall experience	4.32 (0.67)
	Content was useful	4.25 (1.24)
	Recommend to colleague	4.10 (1.23)
	Use strategies in professional life	4.00 (1.22)
	Enjoyed the podcast	4.07 (1.25)
	Podcast is an effective way to deliver PD	4.14 (1.24)

Note. LRE = Least restrictive environment, PD = Professional development; SD = Standard deviation; APE = Adapted physical education.

Table 15

Open-Ended Responses to Each Podcast

Open-Ended Questions	Theme	Response Example(s)
What did you enjoy the most about listening to the podcast?	Organization	(1) The information in the podcast was presented using easy to understand dialog and examples (2) The podcast is short and precise and you can pause it if something distracts you (3) It provided a very clear message and was short enough to keep admin engaged
	Relevant information	(1) Good information was addressed, but not a lot of extraneous information (2) Information presented was timely and relevant
	Podcast features	(3) It was easy to understand for all stakeholders (1) The simple outlines and visuals (2) Large font and the voice over (3) The visuals were just enough to help me focus and remember
What did you enjoy the least about listening to the podcast?	I liked everything	(1) It was rather enjoyable, nothing really unpleasant about it (2) I didn't dislike anything about this podcast
	Additional resources	(1) Handouts or transcript I could have in my hands would help reinforce information (2) I wish I had PPT to make notes on
	Podcast features	(1) It felt like someone was reading a PPT to me (2) Podcasts can be difficult because I tend to want to multitask
	Inadequate content	(1) Presented at a beginner level (2) Nice to have a little more detail
	Miscellaneous	(1) The reminder that we are not doing as much as we could (2) I was interrupted while listening to the podcast in my office

Note. PD = Professional development, PPT = PowerPoint.

Table 16

Open-Ended Responses to Entire Online Professional Development

Open-Ended Questions	Theme	Response Example(s)
What did you enjoy most about the entire online PD?	Organization of the podcast	(1) This is a simple and fast way to deliver information (2) Tempo, pacing, and sequence was comfortable; end of podcast summary helped (3) Organized well
	Relevant information	(1) I learned things I didn't know (2) Simple, relevant, time conscious, and factual
	Flexibility and pacing	(1) Can view it when I have the time (2) I can do it at my own pace (3) Can proceed and complete the PD on my own timeline
What did you enjoy least about the entire online PD?	I liked everything	(1) There was nothing that I didn't enjoy (2) I really can't think of anything (3) They were all informative
	Additional resources	(1) I needed the PPT to take notes on (2) The lack of handout and reinforces (3) I would have liked more examples of lessons
	Podcast features	(1) Can't go back (to access the podcast) (2) I felt like someone was reading a PPT (3) The voice over was choppy (4) PPT are rather dry and monotone

Note. PD = Professional development, PPT = PowerPoint.

Impact of Adapted Physical Educators

An independent *t*-test was used to analyze whether the participants' school district's employment of APE teachers had an impact on how they perceived the effectiveness of the CAPs. Within the analysis, the same two groups used to answer research question two

were used (i.e., those with and without APE teachers employed in their districts).

Through these analyses, it was determined that the special education administrators with APE teachers in their district did not have a significantly different perception of the effectiveness of the CAPs ($M = 4.32$, $SD = 0.67$) when compared to the special education administrators without APE teachers in their district ($M = 4.30$, $SD = 0.68$), $t(27) = -.060$, $p = .95$. Thus, the null hypothesis that the special education administrator's school district's employment of APE teachers would have no significant effect on their perception of the CAPs, was not rejected.

Research Question 4

To gain greater insight into how the participants' perception of the CAPs was associated with their KA, two Pearson's correlation analyses were used. The first Pearson's correlation analysis was used to determine whether special education administrators' post-intervention perceptions were correlated with changes in knowledge from pretest to posttest. No significant correlation was found between the change in knowledge from pretest to posttest and the participants' perceptions of the CAPs ($r = -.24$, $p = .21$). The second Pearson's correlation analysis was used to determine whether special education administrators' post-intervention perceptions were correlated with their change in knowledge between their posttest and retention test scores. Through this second analysis, no significant correlation was found between their change in knowledge from posttest to retention test and the participants' perceptions of the CAPs ($r = -.10$, $p = .66$). Thus, the null hypothesis that there would be no significant correlation between the special education administrators' perception of the CAPs and the change in

their content knowledge scores from pretest to posttest and posttest to retention test was not rejected.

CHAPTER V

DISCUSSION

The purpose of this study was threefold. The purpose was to determine: (a) content acquisition podcasts (CAP) effect on special education administrators' knowledge acquisition (KA) of content related to APE services; (b) special education administrators' perceptions of CAPs for PD purposes; and (c) whether or not the special education administrators' school district employment of an APE teacher impacts their KA and perceptions of CAPs. The current discussion is presented in the following sections: (a) discussion, (b) implications of the results and findings, (c) limitations, (d) conclusions, and (e) recommendations for future research.

Discussion

Numerous barriers prevent APE services from being delivered effectively to students with disabilities. Special education administrators' lack of understanding of how to properly monitor and supervise APE programs has been cited as one major barrier that prevents efficient APE service delivery (GAO, 2010; Gray, 2016; Hays et al., 2011; Stewart, 2010; Tripp & Zhu, 2005). Practices need to be identified to increase special education administrators' knowledge of APE programs. In addition, there is a significant lack of research on the impact of online PD for special education administrators to improve their knowledge (Bizzell, 2011; Crockett et al., 2009; Howley et al., 2002; Leithwood & Levin, 2008). Therefore, this investigation examined the use of CAPs to increase special education administrator's knowledge of APE services.

The current investigation used the CTML (Mayer, 2008) and the andragogy theory (Knowles, 1975) to drive the development and dissemination of the CAPs to the special education administrator participants. The CTML was the primary theoretical framework that guided the development of this investigation, while the andragogy theory was selected as a set of guiding principles that directed the development of the online PD. The CTML states that there are three assumptions for learners: (a) there are two separate channels for processing verbal and visual information (i.e., dual channel assumption); (b) there are limits in the amount of information that can be processed in each channel (i.e., limited capacity assumption); and (c) learners engage in active learning by attending to relevant information and organizing selected information into mental representations and integrating mental representations with prior knowledge (i.e., constructive learning assumption; Mayer, 2008; Mayer, Dow & Mayer, 2003). The CTML provides a model not only to develop online PD, but also a guide to examine how special education administrators are able to learn in an online setting. The discussion was divided into the following sections: (a) special education administrators' knowledge, (b) content acquisition podcasts for special education administrators, and (c) barriers to conducting research with special education administrators.

Special Education Administrators' Knowledge

Multiple studies have recently examined the impact of CAPs on various professionals within the field of education (e.g., physical educators, special educators, pre-service teachers; Healy, 2015; Kennedy et al., 2011; Kennedy et al., 2015; Weiss, Evmenova, Kennedy, & Duke, 2016). Nonetheless, to the best of the investigator's

knowledge, this is the first investigation to examine specifically the effects of validated CAPs with a population of special education administrators with at least three years of experience. Special education administrators' lack of knowledge of APE has been a frequently cited issue that prevents effective APE service delivery to students with disabilities (GAO, 2010; Gray, 2016; Hays et al., 2011; Stewart, 2010; Tripp & Zhu, 2005). This investigation found that in a sample of 29 special education administrators increased their APE content knowledge from pretest to posttest. In addition, all of the participants had generally high perceptions towards CAPs as a form of PD. However, the impact of the CAPs was not apparent when taking into account the special education administrators' performance on the retention test.

Limited adapted physical education knowledge. The overall scores for the pretest, posttest, and retention tests were quite low, with the majority of the participants receiving less than a 50% score on all three tests. The low overall scores are concerning and may suggest that this population has a poor understanding of the field of APE and may need more intensive forms of PD that focus on APE. More specifically, the pretest scores were quite low, with the majority receiving scores of 40% or less. Improvement based on the PD was significant but also small; this demonstrates that even with validated PD delivered to this group, significant gaps within this groups' understanding of APE persisted. Gray (2016) recently found that school administrators perceive that they have a lower understanding of physical education (PE) content compared to PE and APE teachers. Gray also found school administrators generally lack an understanding of some fundamental components of APE, such as whether it is required by law. In addition, Hays

et al. (2011) found that there is a general lack of focus on APE content in special education textbooks. This investigation further confirms that when given an APE content knowledge test, special education administrators indeed have a poor understanding of APE. Further, it may be speculated that this population's general lack of knowledge may have induced a floor effect within this investigation (Sternberg & Kaufman, 2011), which may have resulted in the limited knowledge gains made from pretest to posttest. A floor effect would imply that their APE knowledge was very low and that some of the questions may have been too difficult, especially for those with little to no previous training in APE, and thus may have led them to make guesses on the tests.

Need for high quality professional development. Although there was no significant correlation between KA scores and prior training in APE in the current study, it has been previously reported that targeted PD focused on specific content areas is essential to develop a deeper understanding in that content area (Guskey, 2002). Guskey (2002) explained that many researchers believe that effective PD must be gradual and incremental, rather than expecting lasting results from short-term PD. The short duration of the online PD may be one reason as to why the participants performed so poorly on the retention tests. Although the CAPs were validated and developed specifically for special education administrators, the information given within the CAPs may have needed to be more in-depth for the participants, especially those with little or no background with APE. In addition, lengthier and more gradual PD may also increase the likelihood that participants would be able to retain information.

Lauer, Christopher, Firpo-Triplett, and Buchting, (2013) conducted a review of short-term PD and found that short-term PD should be designed so that participants are likely to learn and transfer their knowledge to real-life scenarios. They found that characteristics of effective short-term PD included sufficient time dedicated to complex topics, the use of learning objectives, opportunities for participants to practice what they have learned, and following-up with the participants. Within these effective short-term PDs, it was also found that many of them presented the problem and why PD was needed, as well as they used examples that have direct application to the participants' work settings. This investigation attempted to (a) dedicate a sufficient amount of time to each CAP topic, (b) develop specific learning objectives for each CAP, (c) present why it was important for special education administrators to better understand the APE-specific content provided within each CAP, and (d) provide examples of how special education administrators could apply the information provided to their professional lives. However, this investigation did not present the participants opportunities to practice what they had learned, nor did it offer them any follow-up resources to use to review the content. The lack of opportunities to practice and the lack of follow-up with the participants may have been a key factor that led to the participants' poor retention scores.

Lauer et al. (2013) also found that many of the effective short-term PD studies used the adult learning theory as a guiding framework (Knowles, 1975); this was also the framework used for this investigation. Although the adult learning theory has been shown to be an effective framework in many PD studies, only a few have used it to guide the dissemination of podcasts as a form of PD (Healy, 2015; Luna & Cullen, 2011). The

findings from these previous investigations, as well as the current investigation, demonstrate that adult learning principles can complement and strengthen the development and dissemination of CAPs. Finally, Lauer et al. (2013) also documented that short-term PD with effective design characteristics can result in positive learning outcomes. This stands in contrast to prior research that purported that effective PD needs to be at least 30 hours in duration (Guskey & Yoon, 2009).

Impact of adapted physical educators and school size. The special education administrators with APE teachers worked in larger school districts, with larger special education programs, when compared to the special education administrators without APE teachers in their districts. The vast difference in school sizes may be one contributing reason as to why there were no significant differences found between the special education administrators' knowledge change across the tests and whether their school districts employed APE teachers. According to Knowles's (1975) adult learning principles, having APE teachers in one's district would imply that APE may be more relevant to him/her. The large differences between the group's school sizes may suggest that special education administrators' professional experiences and responsibilities, specific to APE, may differ based on school size. In addition, it was also found that there was a significant negative correlation between the special education administrators' KA scores and whether they reported their district provided APE services. This suggests that compared to prior APE training or the amount of APE teachers in one's district, being employed at a school district that does not provide APE services may have a significant relationship with special education administrators' ability to learn information with

regard to APE. This rationale aligns with the assumptions within andragogy theory, which would propose that APE would be more relevant and meaningful to special education administrators in districts that provided APE services, hence they would be more likely to learn this information (Knowles, 1975). However, this correlation should be viewed cautiously, as only four participants identified themselves as working in school districts that did not provide APE services.

Furthermore, according to the reports given by the participants, the ratio of students receiving APE services to APE teachers was very low. Previous researchers have found that the national APE student caseloads are much larger, with approximately 51 students per APE teacher's caseload (Obrusnikova & Kelly, 2009). The low APE teacher caseloads may have led these special education administrators to prioritize their professional time and resources toward instructional and related services that are provided to a greater percentage of their student population. Thus, the low APE caseloads may have contributed to the special education administrators with APE teachers in their districts low test scores, as they may perceive APE to have little relevancy to their professional lives.

Content Acquisition Podcasts

Previous research has demonstrated that CAPs are an effective learning tool and significantly impact learning (e.g., Healy, 2015; Kennedy et al., 2011; Kennedy et al., 2015). Furthermore, many of these past studies have found that the use of CAPs on learning has yielded medium to large effect sizes in studies that have utilized a comparison group, such as a group that only receives a text-based intervention (Driver et

al., 2014; Healy, 2015; Kennedy et al., 2016b). Similarly, this investigation found that the participants, who only completed the pretest and posttest, performed significantly better on the posttest. However, it should be noted that the effect size was small, which may be related to a small sample size.

Retention test. Nonetheless, when analyzing the results of those who completed the retention test, it was shown that they were not able to retain information from the CAPs, which contradicts prior research (Kennedy et al., 2011; Kennedy et al., 2016b; Healy, 2015; Weiss et al., 2016). For example, Healy examined the impact of CAPs with 51 PE teachers randomly assigned to an experimental group (i.e., listened to CAPs) and a control group (i.e., did not listen to CAPs). Healy found that the experimental group performed significantly better on the posttest compared to the control group, and the experimental group was able to retain the information gained from the CAPs four weeks after they completed the course. The poor retention test scores may be attributed to the fact that the CAPs used within this investigation could have been completed within one sitting, whereas prior research has embedded CAPs within larger content courses (e.g., undergraduate classes; Healy, 2015; Kennedy et al., 2011). This may be seen as problematic as Kennedy et al. (2016b) explained that CAPs are not intended as a replacement for lecture “or assigned weekly readings. Instead, instructors can assign CAPs to supplement weekly homework assignments. To illustrate, students can opt to review a CAP as an advance organizer prior to reading the course textbook or review the CAP after reading” (p. 154).

The CAPs in this investigation were also given without any other supplemental materials, thus potentially limiting the amount of information participants could acquire and review. Indeed, no information related to APE was given to the participants after they completed the intervention, nor was there any activity or additional resources given to the participants throughout the intervention. This may provide insight on the impact of CAPs as an individual learning tool as the findings from this investigation suggest that CAPs by themselves may not be a significantly effective tool for learners' with regard to retention of knowledge.

Perceptions of content acquisition podcasts. Like most other CAP studies, this investigation found that overall the participants enjoyed listening to the CAPs (Kay, 2012; Healy, 2015; Luna & Cullen, 2011). As stated previously, Mayer's (2008) principles, derived from the CTML, were applied to the CAPs and ensured presentation of content was evidence based, thus maximizing the opportunity for learning to occur. Results from the perceptions of PD survey support the use of CTML-based CAPs in this intervention, with 90% of participants strongly agreeing or agreeing that the podcasts were an effective way to deliver PD. More specifically, among the Likert scale perception statements, the participants consistently rated the statement 'The content in the podcast were useful' as the highest among those given after listening to each CAP. This implies that the participants saw the benefits of information presented via CAPs, which was also identified as a reoccurring theme from their open-ended responses. The statement 'I will use the strategies in this podcast in my professional life' was also highly ranked, which implies that they were able to connect how they could use APE content to

their professional lives. The special education administrators' high ranking of this statement also suggests that the CAPs may have successfully met the adult learning assumption that learners need to immediately apply what they are learning to real-life and professional life situations (Knowles, 1975; Smith, 2002; Terehoff, 2002). However, additional research is needed to further understand how special education administrators are able to use APE content to inform their professional duties.

Among many of the positive comments about the CAPs, some of the participants cited that they enjoyed the accessibility of the CAPs, the organization of useful content, and the engaging graphics used throughout. This aligns with previous research that has shown that participants have consistently enjoyed the flexibility of the CAPs, as well as the practical and relevant information provided by CAPs (Healy, 2015; Kay, 2012). Even when the participants were asked what they liked least about the podcasts, it was cited multiple times that they enjoyed everything. The special education administrators' positive perceptions towards CAPs suggests that tools such as CAPs may be a beneficial and accessible tool for special education administrators to receive online PD. This may be an especially important finding, as it has been cited that special education administrators have a lack of time for PD (Camburn et al., 2016). Therefore, based on these findings CAPs may be especially beneficial to deliver PD to this population, as they have positive perceptions toward CAPs and it allows PD to be more accessible and cost-friendly. Additional research is still needed to understand more about the best practices needed to ensure that online PD can sufficiently inform special education administrators.

However, it should be noted that there was no significant correlation between perceptions of the CAPs and knowledge changes from pretest to posttest; nor was there a significant correlation between knowledge changes from posttest to retention test. This may be partially due to the fact that all of the participants rated their perception of the CAPs overall as at least average, thus creating a ceiling effect where it is difficult to differentiate between their scores. In addition, the sample size was relatively small for a correlational analysis. Previous research has revealed a positive correlation between students' perceptions of the usefulness of online tools and learning; yet with regard to the current investigation, it cannot be determined whether their perceptions of the CAPs influenced their ability to learn from the CAPs (Wei, Peng, & Chou, 2015).

It is also worth mentioning that there were a number of critiques about the implementation and structure of the CAPs. One important critique cited several times was that using accompanying PowerPoint (PPT) slides or other handouts (e.g., transcripts) would have enhanced their learning. Giving the participants additional resources, such as accompanying PPT slides, may have helped them follow along with the content being presented and given them the ability to review the materials. Another critique was that the participants were not able to return to the CAPs and view them again once they listened to them. Furthermore, one participant repeatedly noted being interrupted while completing the CAP in his/her office. Similarly, Healy (2015) found that two PE teachers noted that they were often interrupted due to their professional obligations. Thus, it is imperative that those who develop online PD for educators and school administrators are conscious of their time constraints. Some previous research has embedded CAPs within a

course and allowed them to listen to the CAPs as often as they would like and asked the participants to track their views of the CAPs, this may help learners who are only given the CAPs to better understand and retain the information (Carlisle et al., 2016; Kennedy et al., 2015). Further, this also would align well with Knowles' (1975) notion that adults are self-directed learners who identify and use resources as needed.

Another theme that arose was that some of the participants felt that the content lacked detail. This is worth noting as the CAPs were specifically developed for special education administrators who, according to the literature and this investigation, have a general limited knowledge the field of APE (Gray, 2016; Hays et al., 2011). However, according to the andragogy theory (Knowles, 1975), adult learners have a vast array of experiences, such as some of the participants may have had substantial experience supervising APE teachers. Thus, it is essential that the learning environment and the content supply avenues for learners to be self-directed and deepen their own understanding.

Further enriching content acquisition podcasts. Future CAP development should seek out new ways to engage learners in order to keep their interest levels high and further impact learning. Some previous online learning research has embedded authentic learning experiences within their interventions. For example, Polly (2011) found that participants who developed a curriculum guide as a part of their PD, were able to gain a deeper understanding of the content. The use of authentic learning experiences may be especially beneficial for learners who are new to a content area, as well as they may help learners understand the relevancy of a topic such as APE to their professional

lives. Further, the use of authentic learning experiences paired with the CAPs would give learners additional opportunities to practice and apply what they have learned, which has shown to increase learning and retention of information (Polly, 2011).

Previous research on CAPs aligns with many of the findings within this investigation (e.g., CAPs have a positive impact on learning, participants enjoyed listening to CAPs; Healy, 2015; Kennedy et al., 2011; Kennedy et al., 2015; Weiss et al., 2016). Yet, this investigation was unique in a variety of ways. First, this may be the first investigation that used CAPs with school administrators, more specifically special education administrators. This is important as school administrators are a unique population that have an overwhelming amount of knowledge they need to understand to efficiently conduct their job duties, as well as a great deal of influence over school priorities (Yell et al., 2012; Davidson & Algozzine, 2002). Second, the participants within this investigation were administrators with at least three years of experience, whereas many previous investigations using CAPs has focused on undergraduate students and teachers (e.g., Kennedy et al., 2015). This is interesting in that experienced professionals may have a deeper understanding of their field and have a better grasp on how they can immediately apply certain types of information (Knowles, 1975; Smith, 2002; Terehoff, 2002).

Further research is needed to identify how CAPs may uniquely impact professionals who are at different points of their careers. Lastly, the CAPs in this investigation included an additional step within the validation process, which used a more rigorous approach to develop the transcript content. This investigation employed the

Delphi method, whereby the investigator sent the full transcripts to the reviewers multiple times for feedback until there was full consensus. It appears that this is the first investigation using CAPs that has used this level of rigor in developing the CAPs. Additional research is needed to determine whether using a more rigorous approach to developing the transcripts is beneficial for impactful learning to occur.

Barriers to Conducting Research with Special Education Administrators

Overall, this investigation had a 10% participation rate of those who initially responded to the intervention. It is worth mentioning that prior research has shown that it is difficult to recruit school administrators for experimental research; and thus there is an apparent lack of experimental research on online PD for school administrators (Camburn et al., 2016; Fulton et al., 2018). For example, Fulton and colleagues recently conducted a systematic review of the literature specific to school administrators and online PD and found that only one experimental design study, published from 2007 to 2017, met the inclusion criteria. In addition, none of the identified articles focused specifically on special education administrators.

Attrition rate. High attrition rates are also common within experimental research, and are especially common when conducting research with school administrators, including special education administrators (Camburn et al., 2016; Fulton et al., 2018). Additional barriers specific to school administrators include that this population are uniquely busy and autonomous leaders of complex organizations. It can be hypothesized that some of the same barriers that Camburn et al. (2016) found may be applied to this investigation; though this investigation was delivered fully online. Sener and Hawkins

(2007) evaluated 16 studies that focused on online PD for university faculty members and found that one of the primary reasons for participants dropping out was a lack of time, which has also been a previously cited barrier when conducting experimental research with school administrators (Camburn et al.; Fulton et al., 2018). This may suggest that even when special education administrators are given an easily accessible opportunity to participate in PD, this population still has low participation rates.

An analysis of the available demographic information available for those who did not complete the intervention suggests that a primary reason for not completing the intervention may be attributed to a lack of perceived relevance of content, with 12 (35%) of the participants who did not complete the intervention reported that they did not have APE teachers in their districts. More individualized content and instructional methods may help alleviate attrition in future interventions, as well as additional efforts should be made within the recruitment phase to effectively communicate the need to learn about the field of APE for special education administrators with and without APE teachers in their district. In addition, the inclusion criteria would have resulted in a large number of special education administrators being excluded from this study (42%), if they had completed the posttest. More specifically, 15 (37%) of the participants who did not complete the posttest had two or less years of experience as a special education administrator. This indicates that the inclusion criteria would have excluded special education administrators who were willing to participate in online interventions and may have prompted them to dropout. Future research should consider broadening the inclusion criteria to encompass years of experience in the field of education, rather than just

experience as a special education administrator. This is an important consideration, as it has been found that many school administrators have previous experience as teachers or related service personnel (Gray, 2016; Thompson & O'Brian, 2007). Broadening the inclusion criteria may enable researchers to recruit a larger and more diverse sample of special education administrators.

There was also a relatively high attrition rate (28%) of participants from posttest to retention test. The high dropout rates and the lack of participants to complete the retention test have been attributed to studies conducted in online settings (Healy, 2015; Master et al., 2010). It has also been identified that one key factor in participants dropping out in online research is a lack of relevance to the participants, which as discussed previously, may have been the case for some of the participants and those who did not complete the intervention (Lee & Choi, 2010). Thus, the high attrition rate of the participants who did not complete the retention test may be attributed to a variety of barriers that have been associated with conducting research in online settings and with school administrators (e.g., lack of time, lack of interest; Camburn et al., 2016). However, Camburn et al. (2016) were able to retain all but three of 46 school administrator participants through the use of monetary incentives; yet it is also worth mentioning that the amounts of monetary incentives were not indicated and may have been considerably higher than the incentives given in this investigation.

Attempts to limit attrition rate. A number of efforts were made to reduce attrition in this investigation, including the application of the CTML principles to the CAPs to ensure that they contained high quality content and were properly delivered

(Mayer, 2008). The CAPs were designed to be short in duration, as to limit the amount of time participants needed to dedicate to completing the intervention. The adult learning theory principles were also applied to the development of the intervention and sought to ensure the content was relevant, immediately applicable to their professional lives, and centered on an identified problem (i.e., a lack of knowledge on APE; Healy, 2015; Knowles, 1975; Quinney et al., 2013). Lastly, there were also monetary incentives given to participants who completed the entire intervention. However, some research has shown that appealing to potential participants' altruism, rather than monetary incentives, may actually increase participation in research (Newington, & Metcalfe, 2014). More specifically, researchers have suggested that participants are usually most incentivized to help others and to give back to organizations that have helped them. Thus, future researchers should focus on communicating the benefits of studies such as this one, as to attract more participants based on their altruism.

Implications of the Results

The findings from this investigation may have implications for several professional fields. This section will be presented in relation to the different fields it may have implications under the following subheadings: (a) educational leadership programs, (b) special education administrators, and (c) professional development creators.

Educational Leadership Programs

Educational leadership programs, which develop future school administrators, within higher education should use the findings from this investigation to embed APE topics within their programs in an effort to build awareness about APE. Through this

investigation and multiple other studies (e.g., Gray, 2016; Hays et al., 2011) it has been shown repeatedly that school administrators have a poor understanding of the field of APE. This is an important fact, as school administrators oversee APE services and thus have a great deal of influence over APE service delivery. Educational leadership programs throughout the United States should devote a portion of their courses to growing their graduate students' APE knowledge base through various means (e.g., CAPs). Educational leadership programs should also consider embedding tools such as CAPs into their courses to disseminate knowledge about educational leadership concepts to their graduate students, including concepts related to APE.

Special Education Administrators

Based on the findings from the current investigation and multiple other studies (e.g., Gray, 2016; Hays et al., 2011), special education administrators should be aware of the knowledge gap that exists in their field in relation to APE. As stated previously, even after the intervention was completed, the special education administrators still had low test scores in relation to their knowledge of APE. Of the participants who completed the retention tests, they did especially poorly on the retention test, indicating that they need more intensive training in this area. Further, there may also be a need for them to better understand how APE is relevant to their professional lives. Special education administrators should seek out quality PD opportunities to learn more information about the field of APE. If special education administrators have APE teachers in their district, they should encourage them to conduct in-services and develop materials on the topic of

APE to deepen special education administrators understanding of the importance of APE and how to effectively monitor and supervise APE programming.

Professional Development Creators

The findings from this investigation may have major implications for entities that develop PD for professionals in the field of education, such as school districts, higher education institutions, and outside agencies. These entities should consider developing validated CAPs, as well as other online PD, as a way to disseminate essential knowledge to multiple fields within education (e.g., physical educators, school administrators). In addition, these entities should consider developing online PD, including CAPs, which focus of the field of APE, as it has been shown that school administrators have a profound lack of knowledge in this area (Gray, 2016). In addition, PD creators should consider adding in some of previously mentioned characteristics that may improve the quality of the CAPs, such as additional opportunities to apply the information to their professional lives and allowing them unlimited access to listen to the CAPs. Given the numerous misunderstandings about the field of APE from other professions within education (e.g., school administrators, special educators; GAO, 2010; Gray; Hays et al., 2011), it is suggested the developers of PD consult with APE content experts when creating PD focused on APE. Using validated CAPs to disseminate knowledge would assist entities to develop PD that is more cost effective and accessible, and also use evidence-based practices to develop impactful and relevant PD. Special education administrators are known to have busy schedules, and may have certain times of the year that are busier than others. Future PD creators should consider offering sufficient

timeframes to complete PD that allows special education administrators to work around their busy schedules.

Limitations

The limitations of this investigation should be considered in terms of generalizability of the results. First, one of the limitations in this investigation was the small sample size, as the investigation was underpowered, which was affected by the low response and high attrition rates. Although the selective inclusion criteria allows this research to be generalized to experienced special education administrators in Texas, the criteria may have reduced the amount of participants able to take part in this investigation and the ability to generalize the results to a larger population. Second, although the three tests were pilot tested with educational leadership graduate students, the sample size was relatively small ($n = 11$), which may have potentially limited the parallel reliability of the test questions on the three tests.

Third, the participants appeared to have completed the retention test in a somewhat short amount of time, with some participants completing the test in as little as 4 minutes and 30 seconds. However, it is difficult to compare the time spent completing the retention test to other tests and intervention components (e.g., CAPs, surveys), as the other tests and intervention components were delivered through PsychData as an entire component, thus making it difficult to calculate the time participants used to complete the other tests and intervention pieces. Future research should make it a priority to quantify how long participants take to complete each test and intervention component. It should also be noted that the participants' adherence to the intervention is difficult to adequately

measure. Although there was an adherence question given to the participants after they listened to each CAP, it is unknown whether the participants actually listened to the CAPs in their full entirety.

Fourthly, the CAPs and test questions only focused on three APE content areas. The small sample in this investigation could have a biased understanding or background with these content areas, and the results may not be generalizable to other areas in the field of APE (e.g., transition, assessment). Finally, another important limitation to note is the absence of a control or comparison group in this investigation. However, it should be noted that Kennedy et al. (2016a) noted “a weakness of this line of research is the homogeneity of instruction for students in the comparison condition of each study. Students in the comparison condition read a practitioner-friendly article/chapter to receive content” (p. 154). Future research should consider different mediums, such as a lecture, to use for a comparison variable. Many factors can impact change in knowledge over time, which cannot be reasonably controlled without a comparison group.

Conclusions

Within this investigation, it may be concluded that further research is needed to determine to what degree CAPs can be used as an impactful tool to provide special education administrators with knowledge about APE. Although the participants significantly improved on their posttest, when compared only to their pretest, these findings should be viewed cautiously, as these results were not evident when considering the retention test and whether their school district employed APE teachers. Suggestions were provided to increase application to future online PD for special education

administrators as well as other related areas (e.g., educational leadership graduate programs). Recommendations included giving learners the PPT slides to read along with the CAPs and pairing an authentic learning experience with the knowledge learned in the CAPs. Participants also completed a *Perception of Professional Development* survey (Buschang, 2012), which revealed an overall positive perception of the CAPs as a learning tool for PD purposes. The flexibility of pacing of learning and the relevance of material were cited as being effective aspects of the online PD. Conversely, issues related to the dryness of the content and the oratory skills of the presenter were identified as components of the intervention that could have been improved. This investigation provides evidence for the potential of validated theory-based CAPs to provide special education administrators with the knowledge and skills necessary to better monitor and supervise APE programs for students with disabilities.

Recommendations for Future Research

Based on the current findings and the limitations of this investigation, the following recommendations are for future researchers investigating the impact of CAPs on special education administrators:

1. Future research should replicate this investigation with special education administrators with the use of additional supports, such as access to the accompanying PPT slides and the ability to listen to the CAPs multiple times.
2. Future research should replicate this investigation with special education administrators and examine the effects of CAPs that focus on other topics within the field of APE (e.g., transition, assessment).

3. Future research should examine the use of CAPs paired with authentic learning experiences, such as critical-thinking writing assignments or online discussions in relation to their professional lives.
4. Future research should investigate how special education administrators are implementing the course content into their professional practices and how it has affected their long-term perceptions of the field of APE.
5. Future research should embed CAPs within an educational leadership graduate course, with CAPs focused on a variety of areas that are relevant to special education administrators (e.g., finances, adherence to law).
6. Future research should examine the impact of CAPs on other populations closely aligned with special education administrators, such as educational leadership graduate students and principals.
7. Future research should utilize an experiential design to investigate the impact of CAPs on special education administrators (i.e., intervention group versus control group).

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APPENDIX A

IRB Letter of Approval



Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378
email: IRB@twu.edu
<http://www.twu.edu/irb.html>

DATE: January 26, 2018

TO: Mr. Scott McNamara
Kinesiology

FROM: Institutional Review Board (IRB) - Denton

Re: *Exemption for Effectiveness of Podcasts as Professional Development for Texas Special Education Administrators (Protocol #: 19937)*

The above referenced study has been reviewed by the TWU IRB (operating under FWA00000178) and was determined to be exempt from further review.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. Because a signed consent form is not required for exempt studies, the filing of signatures of participants with the TWU IRB is not necessary.

Although your protocol has been exempted from further IRB review and your protocol file has been closed, any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any adverse events or unanticipated problems. All forms are located on the IRB website. If you have any questions, please contact the TWU IRB.

cc. Dr. David Nichols, Kinesiology
Dr. Suzanna Dillon, Kinesiology
Graduate School

APPENDIX B

Data Set Tables

Table 1

Developing educational leaders: Using MBTI Form M in an online graduate program.
(Flumerfelt, 2007).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Qualitative Analysis	Educational leadership graduate students	To determine if an online educational leadership program can develop student leadership outcomes.	The student reports and a view of their work found that the key to their success in the program relied on good online instruction and student-to-student and student-to-faculty interaction. These finding support the need for additional online programming for school administrators.

Table 2

Podcasting as complement to graduate teaching: Does it accommodate adult learning theories? (Luna & Cullen, 2011).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Quasi-Experimental	Nursing, Social Work, and Library Information Science graduate students	To determine graduate students' perceptions of podcasting access and utility in courses as related to adult learning theory.	The students had favorable views on understanding of the topics covered, with a majority of the students suggesting to read the materials and to listen to the podcasts. In addition, 76% of the students agreed the podcast enhanced or clarified their understanding of the concepts. These findings support the need to pair adult learning theory principles with podcast development.

Table 3

A model for an online program preparing rural directors of special education and pupil services (Dempsey, & Stephens, 2011).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Quasi-Experimental	Special education administrator graduate students	To introduce a model for an online graduate program for rural special education administrators graduate students.	The students received courses in the areas of special education law, leadership, and finances. Follow-up feedback showed the students had high levels of satisfaction with the program. These findings suggest that using an online learning for special education administrators may be effective.

Table 4

Collaborative online professional development for teachers in higher education (Teräs, 2016).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Qualitative Analysis	Higher education teachers	To investigate the learning experiences of educators who participated in an online postgraduate certificate program for teaching in higher education.	The results suggest that collaborative online PD may lead to professional growth; however it can be challenging due to the different learning needs and preferences. An emphasis should be given to supporting the development of self-regulation skills and the facilitation of collaborative learning.

Note. PD = Professional development.

Table 5

From online dialogue towards critical practice: beginning school administrators' reflections (Duncan, 2011).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Qualitative Analysis	Educational leadership graduate students	To explore how new and aspiring school leaders challenge their assumptions about learning and teaching.	The students completed an online graduate class and the results showed that the participants had a deeper understanding of how they learned, how their assumptions about education impacted their actions, and how their actions impacted their students. These findings support the need for additional online programming for educational leadership graduate students.

Table 6

Exploring the use of video podcasts in education: A comprehensive review of the literature (Kay, 2012).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Review of the literature	Undergraduate students; graduate students, K-12 students and teachers	To provide a comprehensive review of video podcasting to inform future research and educational practices.	Benefits were improved affective and cognitive effects, more control over one's learning, and increased performance. Negatives were technical issues, and students favoring a lecture style. These findings support the need for further research and the use of podcasting in educational settings.

Note. K-12 = Kindergarten to 12th grade.

Table 7

Using enhanced podcasts to augment limited instructional time in teacher preparation (Kennedy, Hart, & Kellems, 2011).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Quasi-Experimental	Undergraduate teacher education students	To determine to what extent podcasts designed using the CTML are an effective instructional delivery method for material versus traditional audio-only podcasts.	It was found that supplementing course work with enhanced podcasts appears to be beneficial to for students with regard to factual recall and, higher order thinking skills. In addition, it was suggested that using the CTML designed podcasts may be especially beneficial when learning about a specific content area. Teacher education programs should use these

enhanced podcasts, due to limited time within these programs.

Note. CTML = Cognitive Theory of Multimedia Learning.

Table 8

The effects of online professional development on fourth grade English language arts teachers' knowledge and instructional practices (Masters, De Kramer, O'Dwyer, Dash, & Russell, 2010).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Experimental	Elementary Teachers	To determine the effects of a series of online PD workshops on teachers' knowledge and instructional practices.	It was found that there were significant effects on positive changes in teachers' knowledge and instructional practices. These findings show that online PD may be an effective tool to use to inform and develop in-service teachers' abilities.

Note. PD = Professional development.

Table 9

The effectiveness of using a content acquisition podcast to teach phonological awareness, phonemic awareness, and phonics to preservice special education teachers (Carlisle, Thomas, & McCathren, 2016).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Experimental	Special education undergraduate students	To determine whether using a CAP to teach language arts content was more effective than reading a textbook chapter on the same content.	Students who listened to the CAPs significantly outperformed the comparison group on a number of areas and were able to learn at a faster rate. These findings support that CAPs are effective and efficient method to teach undergraduate students and also assists students to

better apply the knowledge.

Note. CAP = Content Acquisition Podcast.

Table 10

Using instructional technology to improve preservice teachers' knowledge of phonological awareness (Driver, Pullen, Kennedy, Williams, & Ely, 2014).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Experimental	Undergraduate students	To determine whether using a CAP to teach language arts content	It was found that the students who listened to the CAPs significantly outperformed the comparison

was more effective than reading a practitioner-friendly article on the same content. group in learning the content; however it was also found that the students are used to learn through reading. Thus, these findings support that the use of CAPs should be accompanied by additional learning experiences and materials.

Note. CAP = Content Acquisition Podcast.

Table 11

A nationwide survey of school administrator training program provisions and awareness of certification requirements for administrator competency in special education and special education law (Hirth & Valesky, 1991).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3	Correlational	Educational leadership university	To report university requirements	The results from this study showed that universities

Recommendation C	department chairs	for special education and special education law educational leadership endorsement programs.	may be confused about endorsement requirements. Many of the programs did not require a special education law course within their programs. Thus, these findings show that school administrators may be inadequately trained with regard to special education law.
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Table 12

Adapted physical education teachers' concerns in teaching students with disabilities in an urban public school district (Hodge & Akuffo, 2007).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3	Qualitative	APE teachers	To determine whether or	APE teachers reported that they had many concerns about

Recommendation	not APE teachers had job-related concerns associated with teaching students with disabilities in an urban public school district.	teaching students with disabilities, which included feelings of being disrespected and disregarded by their school administrators. universities may be confused about endorsement requirements. Many of the programs did not require a special education law course within their programs. These findings support the need for school administrators to be better understand the importance of APE teachers.
C		

Note. APE = Adapted physical education.

Table 13

Administrators' perceptions of special education law (Davidson & Algozzine, 2002).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level	Correlational	Beginning school	To determine beginning	Beginning school

3	administrators	school	administrators
Recommendation	and	administrators'	reported that
C	educational	perception and	they did not
	leadership	level of	believe they had
	graduate	knowledge of	an adequate
	students	special	understanding of
		education law.	special
			education law.
			Further, they
			showed they had
			an overall
			dissatisfaction
			toward their
			educational
			leadership
			program with
			regard to
			preparing them
			in special
			education law.
			These findings
			show that school
			administrators
			may need
			additional
			special
			education law
			training.

Table 14

Unlocking elementary students' perspectives of leadership (Damiani, 2014).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Qualitative	Elementary school administrators and elementary students	To determine whether and how school administrators learn from students to create more responsive schools, and more responsible models of leadership.	It was found through student reports that more effective school administrators had more meaningful interactions with their students and have dialogue with students about why they valued in the school. Further, the results revealed that school administrators are able to create stronger school environments through including students in the leadership process.

Table 15

Leadership effects: School principals and student outcomes (Coelli & Green, 2012).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Correlational	High school administrators and high school students	To determine the effect of school administrators on graduation rates and English exams	The results showed that school administrators can have a large effect on student achievement; however it may take time before they can be effective. It was also shown that administrators had a greater effect on English scores, rather than on graduation rates. These findings suggest that school administrators need to focus their time on improving specific educational areas rather than solely on graduation rates.

Table 16

Many hats and a delicate balance (Thompson, & O'Brian, 2007).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Correlational	Special education administrators	To determine the career paths and PD needs of special education administrators.	The special education administrators perceived that PD they needed most focused on monitoring student progress, using evidence-based practices, finance, and special education law. It was often reported that educational leadership programs should be time limited and offered in convenient locations. These findings support the need for additional online PD for special education administrators.

Note. PD = Professional development.

Table 17

Professional development for administrators in special education: Evaluation of a program for underrepresented personnel (Monteith, 2000).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Quasi-Experimental	School administrators	To determine the effectiveness of PD with regard to special education on general education school administrators.	The participants reported that they learned valuable information with regard to supervising special education programs. They indicated that school administration endorsement programs lack quality courses on special education. These findings suggest that school administrators need training in special education.

Note. PD = Professional development

Table 18

Self-reported barriers to quality physical education by physical education specialists in Texas (Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Quasi-Experimental	Elementary PE teachers	To identify the barriers elementary PE teachers face with regard to implementing PE.	The participants reported that there are significant barriers that prevent effective PE services from being delivered. These included a poor perception of PE from other school staff members and school administrators. These findings support the need for PD to specifically be used to improve school staff and school administrators'

perceptions
towards PE.

Note. PE = Physical education; PD = Professional development.

Table 19

A national study of state credentialing requirements for administrators of special education (Boscardin, Weir, & Kusek, 2010).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Correlational	State special education administrators	To investigate the number of states offering licenses, certificates, or endorsements for special education administrators.	The participants reported that only 27 states require some type of special education administration license. Less than a third of the states required them to have taken an internship and only one state required that special education administrators

pass an exam to receive their license. These findings show there are various requirements for special education administrators.

Table 20

An examination of the benefits, limitations, and challenges of conducting randomized experiments with principals (Camburn, Goldring, Sebastian, May, & Huff, 2016).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Experimental	School administrators	To determine whether PD had an overall effect on school administrators' instructional leadership abilities.	According to the results, the participants failed to have any PD related effects. Many barriers to conducting experimental research with school administrators exist, such as a

lack of time.
Thus, these findings support the need for more experimental research to be conducted with school administrators as to identify best practices with regard to implementing PD.

Note. PD = Professional development.

Table 21

Identifying the professional development needs of public school principals based on the interstate school leader licensure consortium standards (Spanneut, Tobin, & Ayers, 2012).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3 Recommendation C	Correlational	School administrators	To identify PD needs for school administrators and preferred method of delivery, within a geographical	The results from the school administrators varied greatly with regard to their delivery preference and the types of PD they felt they

section of
New York.

needed. This was especially true when their reports were compared between the school levels they worked in. These findings suggest that school administrators should be able to choose the type and focus of PD they are involved with.

Note. PD = Professional development

Table 22

Can professional development improve school leadership? Results from a randomized control trial assessing the impact of McREL's balanced leadership program on principals in rural Michigan schools (Miller, Goddard, Kim, Jacob, Goddard, & Schroeder, 2016).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level 3	Experimental	School administrators	To determine whether a specially	The participants overall were able to gain

Recommendation C	designed PD for school administrators had an effect on school administrators' learning, behaviors, and beliefs.	significantly in a variety of areas. School administrators grew more in board school-wide areas, rather than in areas related to teacher interactions. These findings show that well-designed PD that is rooted in empirical evidence can have significant impact on school administrators.
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Note. PD = Professional development

Table 23

Online professional development: Building administrators' capacity for technology leadership (Ertmer, Bai, Dong, Khalil, Hee Park, & Wang, 2002).

Strength Level & Recommendation Level	Research Method	Population	Purpose	Summary of Results
Level	Quasi-Experimental	School administrators	To examine the impact of a semester-	Participants reported significant

3		long online	changes in their
Recommendation		PD course on	knowledge
		administrators'	about
C		knowledge	technology
		and skills,	integration as
		related to	well as methods
		technology	they could use to
		integration	support teachers
		and	to effectively
		leadership.	use technology
			for their
			teaching. In
			addition, school
			administrators
			believed that
			online PD may
			be an effective
			tool to use for
			other school
			administrators.

Note. PD = Professional development

APPENDIX C

Specific Learning Objectives

Specific Learning Objectives

CAP Topic 1: Federal Laws

Objective 1: Special education administrators will know that students with disabilities have the right to participate in interscholastic athletics

Objective 2: Special education administrators will know that physical education is defined by Individuals with Disabilities Education Act (2004) under special education and follows the same guidelines directing the special education process

Objective 3: Special education administrators will identify the role of adapted physical educators in the Individualized Education Program process

CAP Topic 2: Inclusion and LRE

Objective 1: Special education administrators will understand the inclusion spectrum as it applies to physical education

Objective 2: Special education administrators will identify strategies to promote physical education in the least restrictive environment

Objective 3: The special education administrator will know the aspects to quality planning of inclusive physical education lessons

CAP Topic 3: Best Teaching Practices

Objective 1: The special education administrator will know the roles and responsibilities of the physical educator providing service to students with disabilities

Objective 2: Special education administrators will understand how to modify the learning environment in physical education

Objective 3: Special education administrators will understand how to modify the task (e.g., rules, equipment) in physical education

APPENDIX D

Transcripts

Inclusion/LRE Transcript

Hello everyone! In this podcast we will be discussing inclusion and least restrictive environments (LRE) in regards to adapted physical education (APE). We will specifically be

discussing the differences between inclusion and LRE, LRE placement options for APE services, and strategies to promote inclusion in a physical education (PE) setting.

LRE and Inclusion

So first off, we will start by discussing what is inclusion and LRE and how they are different, as there are common misconceptions between the two of them. First off, inclusion is the idea of educating everyone in the same setting, regardless of ability levels. We often see schools try to implement inclusion, but we may not see it implemented properly or we may not see it occurring, where it should occur. Inclusion in the PE setting helps benefit students with and without disabilities in a variety of ways. For example, having peers model use positive communication motivates SWD to vocalize more and can lead to improved expressive language and overall communication skills. At the same time, students without disabilities may learn how to use sign language, picture symbols, or improve patience. Properly implemented inclusion offers an opportunity for students with and without disabilities to build friendships that foster socialization opportunities outside of PE and into the community. When SWDs interact and watch their peers model motor skills their motor skills can improve. Better motor skills contribute to overall quality of life and health-related fitness levels. Finally, an inclusive setting offers a more stimulating environment for students with disabilities. For example, while participating in gameplay, SWDs can observe their peers without disabilities model plays and receive support from those same peers to run those plays; this may provide a more stimulating and successful learning environment.

Now let's transition to LRE, which is a continuum of placement options for SWD, which includes inclusion in the general physical education setting as a part of the continuum. As most of us know, LRE is mandated by IDEA, so where the student receives his/her physical education services should also be indicated on student's IEP. So, again, inclusion and LRE are different

from one another in a variety of ways. LRE is mandated by law, whereas inclusion is a philosophy that impacts where students are placed and how educational practices are implemented. Inclusion in the general physical education setting is usually seen as the most ideal option for SWDs, however it may not always be the LRE as SWDs may have needs, such as behavioral, cognitive, and/or physical needs, that make it more appropriate for them to be in another type of PE setting.

With that, let's talk about PE placement options within a LRE. Schools should be providing a continuum of PE placement options. However, it has been reported that many schools do not offer a continuum, rather they only offer PE services in a general physical education setting with little to no supports, or they offer PE services in a completely segregated setting. Two placement options does not make a continuum of placement options that meets the needs of all students with disabilities. Instead multiple placements should be available and have been indicated in models of LRE for PE. One well-known model identifies 9 different PE placement options. According to this model, the LRE for PE is general PE class without any supports, next on the continuum would be a general PE setting with some support services, where we may have paraprofessionals assisting or an APE teacher consulting periodically. Then we would move further along the continuum to look at providing more intensive supports and services, such as splitting time between a general PE setting and a small group setting with the APE teacher. PE services can also be provided in a segregated class, or in a one-on-one setting. The next level would be placement in special schools, such as at a day school for the Deaf. Lastly, APE services can be provided in a home setting or a hospital setting.

So then, the question is, how do you determine where SWDs should be placed in that continuum for PE? This is just like all other special education services where the IEP team, which includes the child and the parents, makes decisions through data from standardized

assessments, curricular assessments, and observations. Just like all other placement decisions, it should be a team consensus. It's worth noting that while norm-referenced tests should be used to determine eligibility for APE services, criterion-referenced tests are best suited for making placement and instructional decisions. This is essential for special education administrators to know, as they should help to inform and ensure inclusive practice is occurring, where ever possible. They should also ensure that a variety of PE placement options are available for SWDs.

Strategies to Promote Inclusion

To have successful inclusion and support LRE for PE services, we also must highlight the strategies that are used to ensure this occurs. It is important to first develop teachers' positive intentions towards inclusion. This is important as research has shown that intentions toward inclusion are essential for it to actually work. When trying to create a more inclusive program, it is important that we develop a culture that is accepting and actively striving for inclusion. One of the biggest barriers to teachers' perceptions toward inclusion are actually their administrators' perceptions toward inclusion. Administrators not only need to have positive views toward inclusion, but also model it and outwardly express it. Now, just stating that one wants inclusion to occur is important, however, administrators should also advocate for their PE teachers to utilize strategies that promote inclusive practice and support a variety of LRE placements.

Many of these strategies used to promote inclusion would be very similar to those found in other education settings, such as consulting with a special educator or an APE teacher, ensuring that the activities are age appropriate, and identifying unique needs. However, I would like to point out a few strategies that are specific to PE. One example might be avoiding elimination games which are unfortunately somewhat common in general physical education. It is important that PE teachers get kids to be as active as possible, unfortunately elimination games remove students from movement for extended periods of time. The kids most likely to be

eliminated early are the SWDS who need the practice and movement the most. Some examples of elimination games would be games like duck, duck, goose, tag games, and dodgeball. Elimination games should also usually be avoided when working with children with an emotional disturbance, as they may overreact or become disengaged. These students may also need additional learning experiences to be successful in activities that emphasize winning and losing. This is not to say PE teachers should not teach competitive activities, but to solely rely on elimination type of games can cause students to have negative perceptions of sport, exercise, and PE.

Another idea to promote inclusion in a PE setting is to teach adapted sport or disability sport as a curricular unit. Teachers at the secondary level in the general PE setting usually teach multiple units on different sports. If they teach disability sport as its own genre of sport, all students may gain a different appreciation and viewpoint of SWDs and disability sports. Personally, I have found that many students with and without disabilities enjoy these types of units. This creates a more level playing field for everyone to be successful. Teaching disability sport also identifies sports that SWDs could practice to be physically active throughout their lives, such as sitting volleyball, or wheelchair basketball, or goalball - all of which are all played at the Paralympic level.

One last strategy to note is Partners PE - these physical education programs, which is usually reserved for older students, bring general education students into a segregated PE setting. So Partners PE is a segregated PE class for SWDs that has trained peer models support the SWDs. The peer models are trained to give individualized instruction through verbal and physical prompting and positive and immediate feedback. SWDs benefit from this, as they get to additional peer modeling and can gain meaningful relationships. In addition, typically developing students learn a lot as well, as they gain leadership skills from learning how to work with SWDs.

Alright, so let's now review some of the information from this podcast, as well as review how it applies to you. LRE and Inclusion are different - LRE is mandated by IDEA and ensures multiple PE placement options for SWDS. Whereas, inclusion is the idea of educating everyone in the same setting. Next, there are many different types of strategies used to promote LRE and inclusion in a PE setting. Many of them can be similar to those in other fields of education. Such as consulting with experts and assessing and identifying unique needs. However, there are also many strategies specific to the field of PE, such as avoiding elimination games or implementing a Partners PE program. Special education administrators need to understand what inclusion should look in a PE setting, that a continuum of LRE options need to be available, and some of the strategies that promote inclusive practice. They should be able to recognize successful inclusion within a PE setting and be able to advocate for it when it is appropriate. In addition, special education administrators should advocate and help develop multiple placement levels for PE to best meet SWDs' unique needs. Understanding these concepts also helps special education administrators evaluate their APE teachers and identify APE teachers who would benefit from professional development and mentoring on how to properly implement inclusive practices in a PE setting. With that, thank you again for listening and we will have one last podcast for you all to listen to that focuses on best teaching practices for APE teachers.

Federal Law Transcript

Hello everyone, in this first podcast, we're going to discuss the federal laws and how they relate to physical education (PE) services, including adapted physical education (APE). Specifically, we're going to talk about how PE is defined in the Individuals with Education Act

(IDEA), how Section 504 of the Rehabilitation Act relates to PE and athletics, and the APE and PE teachers' role in the IEP process.

IDEA

With that, we are going to discuss IDEA and how it's important to the field of PE and APE. First, it is important to note that PE is the only curricular subject that is defined within IDEA. The exact definition of PE is defined as the “development of physical and motor fitness, fundamental motor skills and patterns, aquatics, dance, and individuals in group games and sports, which includes intramural and lifetime sports”. IDEA also states that PE services need to be available to all students with a disability who receive a free and appropriate public education, and these PE services need to be specially designed if needed. It goes on to explain that if specially-designed PE, more commonly referred to as APE, is needed then the school responsible for the child's education has to provide those services directly or make arrangements for the services to be provided by another program. In addition, just like all other special education services, eligibility for APE services is determined through the assessment process with consensus from the IEP team. I think it is incredibly important that special education administrators understand that physical education has a part of the US definition of special education from the beginning and remains in the current IDEA legislation. Based on comments in the Federal Register, lawmakers clearly recognized the need for PE for students with disabilities and set forth mandates in the law.

Within IDEA the qualifications of APE teachers is also discussed. Like all special educators, APE teachers must be state certified teachers who have the subject matter knowledge appropriate to the level of instruction being provided. These mandates within IDEA, left somewhat broad so as not to violate state sovereignty, allow individual states to enact additional requirements for teachers to be qualified to provide APE services. For example, Michigan is one

of 13 states that require APE certification to teach APE. Texas does not require a specific certification. Instead, Texas code states that PE services may be provided by PE teachers, special educators or related service providers, such as Occupational Therapists or Physical Therapists who have the necessary knowledge to teach PE to students with disabilities (SWD). However, recommendations from the US Department of Education and researchers suggest that teachers providing PE services to SWDs should have considerable training in APE. More about this will be discussed later in the podcast.

Lastly, specific to IDEA, it should be noted that specially-designed physical education or APE is considered a direct instructional service rather than a related service. This is important, as APE is commonly mistaken as a related service. Direct services, such as special education and adapted physical education, provide instruction. As such, these educators teach to a curriculum, which has specific content knowledge and content standards that need to be taught. Whereas, related services assist students with accessing the curriculum, which is taught by a direct service provider. Related services could include recreational therapy, physical therapy, and occupational therapy, etc. This is important to note, as once again APE is commonly mistaken as a related service, but is in fact a direct instructional service and should be documented as a direct service in the IEP.

APE teachers' role in the IEP

Next we need to discuss the APE teachers' role in the IEP meeting. It has been well-documented in research that APE teachers are not invited to or involved in IEP meetings. However, as a service provider, they should be involved like other IEP members. APE teachers should specifically be involved with assessing students to determine eligibility for APE services, writing and monitoring goals and objectives, and developing transition programs related to the health and vocational needs of the student. Just like all other IEP team members, APE teachers

should be actively involved in sharing assessment results and giving feedback to the IEP team; as well as communicating with parents about physical education services and sharing information on cognitive, social and psychomotor learning.

Section 504, The GAO report and Corresponding Dear Colleague letter

Alright, so now we are going to talk a little bit about Section 504 and physical education and sports for SWDs. As part of the legislation, Section 504 of the Rehabilitation Act ensures that people with disabilities are not discriminated against on the basis of disability, and have equal opportunities to participate in the physical education and school sport programs their abled-bodied peers do. As recipients of federal funds, schools and their sports programs are covered under Section 504 and must adhere to the mandates. In 2010, the Government Accountability Office conducted a national investigation of physical education and sports for students with disabilities addressing mandates of IDEA and Section 504. They found that nationwide many schools are doing a poor job of integrating SWDs in PE and school sport programs. The GAO identified barriers including a lack of equipment and space, inadequately trained general physical educators and coaches, a lack of placement options, and poor attitudes of educators and administrators toward physical education and athletics for SWDs.

While the GAO report addressed PE and school sport programs, in this part of the podcast, we are going to focus on school sport programs for SWDs, as historically there has not been a major focus on this in the schools. In response to the GAO report, the US Dept. of Education Office of Civil Rights issues a Dear Colleague Letter in 2013 to give school administrators guidelines on how to provide reasonable accommodations as well as properly implement school sport programs for SWDs. The letter clarified that SWDs cannot be discriminated against based on their disability, or be denied access to school sport programs. Rather, schools should have a formal and non-biased assessment process that is used for everyone and determines who

participates in a given sports program. As a part of this process, SWDs are also allowed reasonable accommodations when they are trying out and while participating in the school sport program. Some examples of these reasonable accommodations may include a one hand touch for a swimmer with only one arm, physical contact at the start of a wrestling match for an athlete who is blind, or allowing a visual cue along with the start gun to signal the start of a race for a runner who is hearing impaired. It should also be pointed out that access to school sport programs does not simply mean that students with disabilities are always on the sidelines, such as being a team manager does not constitute access to school sport programs. Access to school sport programs means that students are able to access meaningful school sport participation that is relevant to their lives. So to once again, to reiterate this point, you need an eligibility process in place and to provide reasonable accommodations for students with disabilities in your school sport programs.

According to the Dear Colleague letter, when the interests and abilities of some students with disabilities cannot be as fully and effectively met by the school district's existing school sport program, the school district should create additional opportunities for those students with disabilities. These opportunities could include school sponsored interscholastic teams and/or alternative sport programs for certain disabilities. Alternative programs could include Paralympic sports for specific disabilities, such as wheelchair basketball or goalball. So if you are not going to provide everyone with an opportunity to participate in an integrated setting, then you need to consider other types of sport programs that SWDs can participate in.

REVIEW

Alright, so let's now review some of the information from this podcast, as well as review how it applies to you. First, it is important to remember that PE is the only curricular subject that is specifically defined in IDEA. IDEA also includes PE as a part of the definition of special

education making it a direct service that should be provided by appropriately certified teachers. Further, the APE teachers' role in the IEP meeting was also covered. Like other IEP team members, APE teachers should be involved with planning and developing the IEP, be regularly invited to meetings, and develop and monitor goals with regard to APE. Special education administrators need to understand these concepts, as they can inform other members of IEP teams about the role of APE teachers and help to ensure that APE teachers are able to attend IEP meetings on a regular basis. Lastly, the 2013 Dear Colleague Letter clarified the mandates of Section 504 and reiterated the fact that SWDs have the right to access school sport programs or have school sport programs developed to meet their unique needs, if needed, as to ensure equal opportunities. Knowledge of these laws as they apply to physical education and sports for students with disabilities helps districts prevent potential lawsuits and supports the provision of a free and appropriate public education. With that, thank you again for listening and we will have two more podcast for you to listen to that focuses on inclusion and the least restrictive environment in PE and best teaching practices for APE teachers.

Teaching Practices Transcript

In this last and final podcast we are going to discuss best teaching practices in adapted physical education (APE). Hopefully this discussion will help you know what to look for when you evaluate your APE teachers. In this podcast we will specifically be discussing the benefits of a strong physical education program, including an APE program; the roles and responsibilities of

APE teachers, and modifying the learning environment and activities in a physical education setting.

Benefits of PE

The purpose of quality physical education programming involves teaching students a wide range of movement, knowledge, and skill-building experiences, so that they may be physically active throughout their lifetime. In teaching students how to be physically active across their lifetime, physical education programming focuses on teaching across all 3 learning domains. There is the psychomotor domain, which includes learning motor skills, sport skills, and fitness skills. There is the affective domain, which includes teaching prosocial skills in physical activity settings such as how to deal with losing and winning; demonstrating best effort and respect; and effective communication skills. Lastly, there is the cognitive domain, where students learn information essential to living a healthy life and becoming more skilled movers. For example, they may learn about the different muscles used when working out, how to breakdown a motor skill, or the rules and strategies for a sport.

So, if physical education programs are well crafted and tailored to meet student needs, then all students, including those with disabilities, will gain a lot from them. They can gain physiological benefits of regular exercise, which increases their muscular strength and endurance, flexibility, cardiovascular fitness and it helps address obesity concerns. Long-term, physical education instruction can help student's lead longer and healthier lives, which has important and positive outcomes. For example, being physically activity contributes to missing fewer days of work, getting sick less often, and helping them sustain work in jobs that require muscular strength or endurance.

Through a quality physical education programming, students can also gain benefits in social and academic achievement. It has been shown that students with disabilities

gain improved psychological well-being, such as improved self-esteem and body image, through physical education. They can also gain a lot from the social relationships in physical education. For example, students with disabilities have opportunities for same aged peers to model appropriate behaviors while students without disabilities have opportunities to better understand their peers with disabilities. It has also been shown that exercising can affect the blood flow of the brain and promote growth of brain cells. These changes can improve cognitive functioning including information processing, attention, and storage and retrieval.

Roles and Responsibilities

The role of an APE teacher is to ensure that SWDs are receiving a quality physical education program that meets their unique needs. To do this, they need to either provide direct instructional services to the students or consultative services to assist physical educators with providing a quality physical education program. The APE teachers' role should also include regularly attending and participating in IEP meetings, consulting with physical education teachers, and explaining ways to help their students be successful in physical education, such as modifying group formats, rules, or equipment. We will discuss this in more depth shortly. In addition, APE teachers should be prepared to develop and/or implement a curriculum that resembles, as much as is possible, the general physical education curriculum. They also should be trained and skilled at managing behavior in a physical education setting.

Lastly, when we are talking about the responsibilities of APE teachers, we want to make sure we are hiring well-prepared APE teachers. As we discussed in a previous podcast, it is highly recommended that you hire a nationally certified APE teacher, which is also referred to as a CAPE. A CAPE is someone who has passed the Adapted Physical Education National Standards exam. The national standards and the exam were developed by the National Consortium for Physical Education for Individuals with Disabilities to ensure physical educators have the content

knowledge and skills needed to effectively teach SWDs. The CAPE certification is a very strong indicator that physical education teachers are well-prepared to provide physical education services to SWDs, as those who earn the CAPE credential must not only possess the knowledge to pass the APENS exam, but they also must have a bachelor's degree with a major in PE, have a minimum of 12-credit hours in college courses that focus on APE, and a minimum of 200 hours of documented experience providing physical education to SWDs. So becoming a nationally certified APE teacher or CAPE really shows that they have experiences teaching physical education to SWDs and understand the content needed to teach it.

Modifying the Learning Environment

Now let's talk about modifying the learning environment for SWDs in a PE setting. This is important to understand when observing PE teachers teaching SWDs. We are first going to talk about Newell's Model, which explains that there are 3 major constraints that affect one's motor development. Understanding this framework helps us understand how to best modify a learning environment. This framework consists of individual constraints, environmental constraints, and task constraints. For each of these constraints, a PE teacher should examine and conduct modifications in these areas to best meet the students' needs.

Individual constraints include height, motivation, or behaviors. For example, PE teachers could use some type of motivation and/or behavioral reward system in place for them, such as behavior chart where they can earn free time or time to play their favorite activities. Or they could teach yoga and relaxation technique if they need to learn calming skills. Most individual constraints, we do not have a lot of control over, so unless you are doing a lot of relaxation or yoga techniques to ensue relaxation and calming in a child, in the field of education it is usually advised to put most of your focus on the other constraints. In PE, environmental constraints could be the temperature of the room, the amount of light, humidity, what type of flooring are we using,

it could also be how echoey the room is as well. For environmental constraints, PE teachers may want to use cork boards around the room, as they help to suck up sound in the room, maybe they also avoid going to the playground or using another surface, as the playground maybe is only gravel and does not allow accessibility for chair users, or maybe for a student who is blind, you would rope off the area that they need to be in so that they know their area well.

Then lastly, for task constraints the physical educator should really focus on modifying instruction, games and class organization, rules, and equipment. I want to spend the most time on this constraint, as this constraint will most likely be the one you can identify while evaluating a PE class and help give the physical educator advice on how to improve this area. For instruction, the physical educator needs to ask themselves how their students learn best. Do the students learn better with straight forward commands, do they learn better when getting instruction from a peer, or do they learn better when we leave things more open-ended. The physical educator should also consider utilizing reward systems, and trying to tap into a variety of interests as well. For organization, they need to ask themselves, do they learn better in a whole group setting, in a small setting, or a one-on-one setting. Do they do better when they are paired with a peer model or do they do better when they are with peers who are at their ability level? For rules, the PE teacher can decrease or increase rules and expectations. Such as, a physical educator may reduce the length of how far they need to run. Or the instructor may make a baseball/kickball rule that provide a designated runner for the SWD, which would be someone who runs for them. Or perhaps in a game of basketball, you add a hula hoop under the basket, so that it is lower and still counts as a basket. For equipment, the PE teacher may consider changing out the traditional equipment, such as balls or bats, with smaller equipment or adapted equipment. For example, a lot of times in volleyball, they may start out with a beach volleyball, then move on to a trainer volleyball, and then finally a regular volleyball, physical educators should apply these principles

to other areas as of equipment modifications as well. So those are a few ideas on what you can do to the learning environment in a PE setting on a regular basis to make the learning environment more accessible for SWDs.

Lastly, when PE teachers are working with students with specific types of disabilities, there are a few specific modifications or instructional tips they may want to include for these students. For example, for students with intellectual disabilities perhaps they may break down tasks into smaller pieces, give frequent reminders, and then also give peer models to model motor skills and proper behavior. For students with emotional impairments, PE teachers may use cooperative games as a major part of their curriculum, where they have to solve problems as a group through using leadership skills, communication skills, and through working with one another.

Let's now review some of the information from this podcast, as well as review how it applies to you. This podcast was meant to explain some of the benefits of a quality physical education program for students with disabilities, which are numerous and come from exercising, playing and learning about sports and working with others. These benefits include physical, cognitive and affective benefits. If the special education administrator understand these benefits, they are more likely to advocate for quality PE programs for SWDs, including APE services when appropriate. In addition, we also discussed that APE teachers should be competent in teaching both the PE curriculum as well as SWDs. One way to know that a person is well-prepared to teach APE, is if they are CAPE certified. Special education administrators who are aware of this understand what it means to be a CAPE, what the implications are for SWDs. This would likely lead administrators to hire well-prepared APE teachers, as well as to advocate for your existing physical educators who are teaching students with disabilities to get certified. Lastly, we also discussed some specific teaching strategies of quality APE teachers, which

included modifying tasks, rules and the learning environment. It is important for special education administrators to understand the strategies their APE teachers employ, as this will help them evaluate teaching effectiveness, as well as give adapted physical educators ideas on how they can grow as teachers. With that this is our last podcast, I hope you enjoyed them all and felt they were beneficial. Please make sure you take the last surveys and tests. Thank you for your time and the work you do to help educate students with disabilities.

APPENDIX E

Cognitive Theory of Multimedia for Learning Fidelity Checklist

Research-Based *Cognitive Theory of Multimedia* Principles (Driver et al., 2014; Mayer, 2008; 2009)

Research-Based <i>Cognitive Theory of Multimedia</i> Principle	What this means for CAPs on APE	Principle Met? (Yes/No)	Comments:
Pre-training - People learn better when given an advance organizer or preliminary instruction for the content being introduced	The CAP begins with an explicit statement of purpose and an advance organizer for content		
Coherence - Instructional materials are enhanced when irrelevant or extraneous information is excluded	The CAP only contains information relevant to APE		
Signaling - Learning is enhanced when explicit cues are provided that signal essential content	There are recurring explicit cues to signal key information, including judicious use of on-screen text that highlights essential content, and explicit statements providing definitions and other key information		
Segmenting - People learn better when multimedia presentations are divided into short bursts as opposed to longer modules	The CAP is approximately 10 minutes long; however, it is broken into three parts, and contains embedded pauses for reflection during the 10 minutes.		
Redundancy - Inclusion of extensive text on screen along with spoken words and pictures hinders learning	The CAP only contains carefully selected key text on screen		
Spatial Contiguity - On screen text and pictures should be presented in close proximity to limit eye shifting	All on-screen text and pictures are presented in close proximity to one another		
Temporal Contiguity - Pictures and text shown on	All pictures and text appear and to the audio		

APPENDIX F

Participant Recruitment Email Script

We are emailing you to ask you to participate in an online research study for my dissertation. This research study will involve each participant listening to three podcasts within a two-week period. The first 10 participants to complete the podcast intervention and all components of data collection will receive a \$30 Amazon gift card. An additional 15 participants who complete the intervention and all components of data collection will be entered in a raffle to win a \$15 Amazon gift card. The podcasts will focus on adapted physical education and will each be approximately 10 minutes long. This study will involve completing a demographics survey, three knowledge tests, and a perceptions survey. The total amount of time needed to complete this study will be approximately three hours over a five-week period. To be included in this study you must meet the following requirements: (a) be a licensed administrator in Texas, (b) currently are a

special education administrator, and (c) have at least 3 years' experience as a special education administrator. If you are interested in this study, please click the link below to access PsychData. PsychData will have further information on the study. Confidentiality will be protected to the extent that is allowed by the law. There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings and internet transactions. Your involvement in this study is completely voluntary and you may withdraw from the study at any time without penalty. If you have any questions or concerns about the research study, please contact Scott McNamara, a doctoral candidate in the Kinesiology Department at Texas Woman's University at smcnamara@twu.edu or call 940-898-2592.

Sincerely,

Scott McNamara

APPENDIX G

Demographic Survey

Demographic Questions

1. What gender do you identify with?
 - a. Male
 - b. Female
 - c. Other_____

2. Are you currently a special education administrator in Texas?
 - a. Yes
 - b. No

3. Do you have a valid administration license in Texas?
- a. Yes
 - b. No
4. How long have you been a special education administrator?

5. What is your age? _____
6. Which of the following best describes your race/ethnicity?
- a. White
 - b. Asian
 - c. African American
 - d. Hispanic/Latino
 - e. Native American
 - f. Other_____
7. What is the highest degree you have completed?
- a. High School
 - b. Associate's
 - c. Bachelor's
 - d. Master's
 - e. Doctoral
8. Which category best describes the school where you are currently employed?
- a. Alternative
 - b. Independent
 - c. Charter
 - d. Disciplinary Alternative Education Program
 - e. Regular Instructional
 - f. Juvenile Delinquency Center
 - g. Other_____
9. Approximately how many students are in your school district? _____
10. Approximately how many students receive special education in your school district?

11. Do you have adapted physical education services available in your school?
- a. Yes
 - b. No
12. Approximately how many students receive adapted physical education services in your school district? _____

13. How many adapted physical education specialists do you have in your school district?

14. Have you ever received training in adapted physical education prior to taking this course?

a. Yes

b. No

15. Have you ever received professional development within an online environment?

a. Yes

b. No

16. Have you listened to a podcast(s) for recreational purposes?

a. Yes

b. No

17. Have you listened to a podcast(s) for professional development purposes?

a. Yes

b. No

18. If you would like to have the opportunity to win either a \$30 or \$15 Amazon gift card after completing this study, please give your preferred email address below.

APPENDIX H

Perception Surveys

Perceptions Surveys

After each podcast is listened to:

Please indicate how much you agree or disagree with each of the following statements in regards to the podcast you just completed.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
--	-------------------	-------------------	----------------------------	----------------	----------------

In regards to the federal laws podcast:

1. This podcast was interesting.	1	2	3	4	5
2. This podcast was organized.	1	2	3	4	5
3. This podcast was helpful.	1	2	3	4	5
4. This podcast was boring.	1	2	3	4	5
5. This podcast was informative.	1	2	3	4	5
6. This podcast was worth my time.	1	2	3	4	5
7. I learned a lot about federal laws in relation to adapted physical education?	1	2	3	4	5
8. I would recommend this podcast to a colleague.	1	2	3	4	5
9. I will use the strategies in this podcast in my professional life.	1	2	3	4	5
10. I enjoyed this podcast.	0	2	3	4	5
11. What did you enjoy most about this podcast?					
12. What did you enjoy least about this podcast?					

After all of the podcasts are listened to:

How would you rate your overall experience with the entire online professional development program?

Poor	Fair	Average	Good	Excellent
1	2	3	4	5

Please indicate how much you agree or disagree with each of the following statements in regards to the podcast you just completed.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Overall:					
1. The content in the podcasts were useful.	1	2	3	4	5
2. I would recommend this training to a colleague.	1	2	3	4	5
3. I will use the strategies in this training in my professional life.	1	2	3	4	5
4. I enjoyed this training.	1	2	3	4	5
5. Podcasts were an effective way to deliver the information in this training.	1	2	3	4	5
6. What did you enjoy most about the entire online professional development program?					
7 What did you enjoy least about the entire online professional development program?					
8. What was your favorite podcast topic to listen to?					
9. What was your least favorite podcast topic to listen to?					
10. What recommendations do you have to improve the entire training program?					

APPENDIX I

Test Questions

Test Questions

One major differences between inclusion and the least restrictive environment is:

- a) Least restrictive environment is mandated by law*
- b) Inclusion and least restrictive environment are identical
- c) Inclusion is mandated by law
- d) Inclusion allows students to succeed

Which one of these statements is true?

- a. Adapted physical education programming can be implemented in general education settings. *
- b. Adapted physical education programming can be implemented only in segregated settings.
- c. Adapted physical education programming cannot be implemented interchangeably in more than one setting.
- d. Adapted physical education is a related service.

Which of the following teacher behaviors would be an appropriate way to include a student with a disability in a general physical education setting

- a. If the physical educator consulted with the special educator about learning preferences*
- b. If the physical educator developed and implemented a Partner's Physical Education program
- c. If the physical educator used competitive games (e.g., dodgeball)
- d. If the physical educator developed a continuum of physical education placement options

Which of these statements is true with regard to documentation of physical education services in the IEP?

- a. If a student with a disability is educated in a separate facility (e.g., a residential school for Deaf children), it is not necessary to document physical education services in the IEP.
- b. If a student with a disability participates in general physical education with modifications, it is not necessary to document physical education services in the IEP.
- c. If a student with a disability participates in general physical education without modifications, it is necessary to document physical education goals and objectives in the IEP.
- d. If a student with a disability participates in general physical education with modifications, it is necessary to document physical education services all applicable areas of the IEP.*

The best way an administrator can assist general physical educators' intentions toward inclusion is:

- a. Having a positive attitude toward inclusion*
- b. Making resources for inclusion available
- c. Sending teachers to professional development in regards to inclusion
- d. Having a consultant come in and identify how to make classes more inclusive

The Individuals with Disabilities Education Act requires that physical education for students with disabilities be conducted in:

- a. the least restrictive environment*

- b. segregated settings
- c. integrated settings
- d. small groups
- e. mainstream settings

Students with disabilities who are included in the general physical education setting benefit from which of the following:

- a. Improved communication skills
- b. Improved chances for socialization
- c. Improved health-related fitness
- d. All of the above are benefits from being included in the general physical education setting*

The January 2013 Dear Colleague Letter, the Department of Education Office of Civil Rights covers all the following areas, except:

- a. Explains that schools must provide disability specific sport activities for students with disabilities*
- b. Explains that school must develop formal performance assessments for acceptance or denial of participation in sports program.
- c. Reviews mandates developed in former federal laws that state that children with disabilities cannot be denied educational services on the basis of their disability.
- d. Defines equal opportunity for participation in school activities

Under IDEA (2004), adapted physical education must be provided by:

- a. Special educators or adapted physical educators
- b. Certified teachers*
- c. General physical educators
- d. Adapted physical educators

The adapted physical educator should be involved in which of the following IEP roles:

- a. Assessing goals and eligibility
- b. Determining assessments for adapted physical education related content
- c. Developing IEP goals and content
- d. Being an active member of the IEP team
- e. All of the above*

From the Government Accountability's Office 2010 report on adapted physical education, which of the following was one of the reported barriers to effective adapted physical education service delivery?

- a. A lack of qualified and trained professionals to teach physical education*
- b. A lack of assessment tools to use to determine eligibility for adapted physical education
- c. Teachers and parents having negative perceptions towards physical education
- d. Too many placement options for adapted physical education

An example of a direct service within special education is:

- a. Adapted physical education*
- b. Recreational therapy
- c. Physical therapy
- d. Orientation and mobility

Which of the following would NOT be considered an equipment modification?

- a. Decreasing the length of the court*
- b. Changing the height of a basketball rim
- c. Changing the size of a ball in basketball
- d. Offer a variety of balls with a variety of textures for batting

The teaching approach known as “cooperative games” emphasizes:

- a. maximized participation and the avoidance elimination games*
- b. intermittent participation and the use of elimination games
- c. intermittent participation and the avoidance of elimination games
- d. maximized participation and the use of elimination games

Which of the following would be considered an accommodation with a basketball game?

- a. Adding a hula hoop under the basketball net as a second goal*
- b. Reducing the size of the court
- c. Allowing the use of a playground ball instead of a basketball
- d. Shortening the height of the rim

Within the physical education curriculum, affective learning tasks should teach students:

- a. how to use feedback to improve skill performance
- b. how to develop relationships and communication skills*

- c. how to make good food choices and conduct proper exercises
- d. how to use sport skills, strategies and tactics

Which of the following is NOT a purpose of physical education?

- a. To develop athletic ability.
- b. Promote understanding and appreciation for differences among people in physical activity settings.
- c. To expand options for wise use of leisure time.
- d. To involve the learner in a wide range of movement, knowledge, and skill-building experiences.

Which of the following statements best represents quality physical education programs:

- a. Quality physical education programs focus on physical development and health and wellness
- b. Quality physical education programs focus on physical and cognitive development
- c. Quality physical education programs focus on physical and social development
- d. Quality physical education programs focus on physical, affective, and cognitive development*

When modifying a task, a physical educator should consider which of the following:

- a. Instruction
- b. Organization
- c. Rules
- d. Equipment
- e. All of the Above*

All of the following are effective strategies for grouping students EXCEPT:

- a. Allow student leaders to pick the teams*
- b. Group the students based on affective and cognitive need
- c. Let students choose their groups
- d. Group students by birthdays

Strategies to promote inclusion in a general physical education setting include which of the following:

- a. Teach disability sports to abled-bodied students*
- b. Use elimination games on a regular basis
- c. Offer a continuum of physical education placement options
- d. Teach the students in a one-on-one setting

When students with disabilities are educated in inclusive physical education settings, with proper accommodations and supports, which is most likely to occur

- a. Students without disabilities will have less time to be on task*
- b. Students with disabilities will have decreased levels of participation
- c. Students with disabilities will have a less stimulating environment
- d. Students without disabilities will have less leadership roles

Partner physical education programs are an example of:

- a. Teaching students with and without disabilities in a segregated setting*
- b. Teaching students with and without disabilities in inclusive general physical education setting
- c. Teaching students with and without disabilities within the most appropriate placement setting
- d. Teaching students with disabilities in a segregated setting

Adapted physical educators can provide adapted physical education services in which of the following settings:

- a. Extracurricular settings, such as Special Olympics
- b. School settings
- c. Community settings
- d. All of the above are appropriate settings*

Decisions in regards to physical education placement should be based on all which of the following:

- a. Teacher attitude*
- b. Class size
- c. IEP team recommendations
- d. Student's needs

The most restrictive environment where physical education services can be delivered is:

- a. A hospital*
- b. A separate school
- c. In one-on-one settings
- d. In general physical education

To ensure that students with disabilities are educated in the least restrictive environment, the school must:

- a. Offer a continuum of physical education placement options*
- b. Offer special classes for students with disabilities
- c. Hire an adapted physical education specialist
- d. Train the students without disabilities how to be peer tutors
- e. Always teach physical education in an inclusive setting

Areas to be tested when establishing the present level of performance in physical education are inferred in:

- a. The definition of physical education in IDEA (2004)
- b. The individualized education program
- c. The definition of special education in IDEA (2004)*
- d. Texas state rules and regulations

To determine if state special education law and regulations meet or exceed federal requirements related to adapted physical education, one would:

- a. Compare state laws/regulations to the Individuals with Disabilities Education Act*
- b. Compare state laws/regulations to the Americans with Disabilities Act
- c. Compare state laws/regulations to Section 504 of the Rehabilitation Act of 1973
- d. Compare state laws/regulations to the Every Student Succeeds Act

Based on the legislative definition of physical education, an appropriate area for physical educators to focus is on:

- a. Fundamental motor skills*
- b. Reflexive behaviors
- c. Reaction time
- d. Rudimentary movements

According to IDEA (2004), physical education is a(n):

- a. Direct service*
- b. Related service
- c. Therapy service
- d. Extracurricular service

In the January 2013 Dear Colleague Letter, the Department of Education Office of Civil Rights clarified components of the Rehabilitation Act of 1973 and provided guidelines for _____

- a. establishing interscholastic sports for students with disabilities*
- b. establishing adapted physical education in public schools
- c. establishing paraeducator training programs on how to deliver special education in public schools
- d. establishing coaching principles for coaches working with athletes with disabilities

When developing the IEP, the adapted physical educator should consult with all but which of the following:

- a. Speech Therapist*
- b. Special Educator
- c. Parents and Child
- d. Recreation Therapist
- e. All of the above should be consulted, if they are a part of the IEP team*

Physical education is defined in which law:

- a. Individuals with Disabilities Education Act*
- b. Inclusion in Physical Education Act
- c. Section 504 Rehabilitation Act of 1973
- d. Americans with Disabilities Act

According to Newell's Model, which of the following is an individual constraint to consider when modifying physical education activities:

- a. Game organization
- b. Extraneous noise
- c. Off-task behaviors*
- d. Equipment choices

Which of the following would not be considered a true statement in regards to game modifications.

- a. Modified games should not be competitive.*
- b. Peer partners help to reinforce the rules for a game.
- c. Scoring can be optional.
- d. Avoid games where captains pick teams.

Which of the following criteria does not need to be met for physical educators to become certified adapted physical educators (CAPE)

- a. Hold a valid teaching license in physical education*
- b. Complete a minimum of 12 credit hours in coursework related to adapted physical education
- c. Have 200 hours of documented teaching of physical education to students with disabilities
- d. Hold a graduate degree in adapted physical education or a related field

Techniques used to adapt or modify physical education activities include:

- a. Shortening the distance, and/or increasing the size of the equipment*
- b. Eliminating grading standards
- c. Supporting all students in a physical education class and providing everyone beep-balls rather than playground balls
- d. Determining what typical sport behavior is and ensuring that all students are using this behavior regardless of the setting

Learning about sport rules, traditions, history, and etiquette falls under which of the following physical education curriculum learning domains?

- a. Cognitive*
- b. Affective
- c. Physical
- d. Communication

Which of the following is the best way to make the determination that a physical educator is well-prepared to teach students with disabilities:

- a. Have attained their certified adapted physical education (CAPE) certificate*
- b. Have previous experiences with teaching general physical education to children with disabilities
- c. Have had 14 credits in their undergraduate program that focused on adapted physical education
- d. Have experience working as a special educator

According to Newell's Model, which of the following is a task constraint to consider when modifying physical education activities?

- a. Game organization*
- b. Extraneous noise
- c. Off-task behaviors
- d. Reward systems

Adapted physical education is:

- a. A service rather than a setting*
- b. A service for students excused from physical education
- c. A service used to meet the short-term needs of students with disabilities
- d. A service that is essentially the same as physical therapy
- e. A service implemented in a segregated or separate setting

Which is the best strategy for including students with disabilities in a general physical education class?

- a. Allowing students with disabilities to be in a decision making role*
- b. Allowing students with disabilities to keep score
- c. Allowing students with disabilities to be an equipment manager
- d. Allowing students with disabilities to play a game parallel to their typically developing peers

Students should only be placed within a segregated physical education setting when:

- a. It is in the student's best interest*
- b. There is a lack of equipment
- c. There is a lack of qualified physical educators
- d. It is in the general education students' best interest

Adapted physical educators should work to accommodate students with disabilities in intramural and interscholastic sports as mandated by:

- a. Section 504 of the Rehabilitation Act of 1973*
- b. The Americans with Disabilities Act
- c. The Individuals with Disabilities Education Act
- d. Every Student Succeeds Act

Which of the following best describes the mandates of Section 504 of the Rehabilitation Act of 1973 for individuals with disabilities?

- a. Individuals with disabilities must be provided with opportunities to participate in extracurricular activities and intramural activities*
- b. Individuals with disabilities must be provided with opportunities to participate in extracurricular activities
- c. Individuals with disabilities must be provided with adapted physical education as a direct service
- d. Individuals with disabilities must be provided with access to and appropriate accommodations within fitness facilities

Which of these statements is incorrect?

- a. Adapted physical education is a related service.*
- b. Adapted physical education encourages participation in physical activity.
- c. Adapted physical education is a direct service.
- d. Adapted physical education is focuses on an educational curriculum.

Which of these statements is NOT true regarding references to physical education in an IEP?

- a. If a student with a disability is educated in a separate facility, it is not necessary to refer to physical education in the IEP*
- b. If a student with a disability takes general physical education without modification, it is not necessary to refer to physical education in the IEP
- c. If a student with a disability takes physical education in a general class with modification, it is necessary to describe the modification in the IEP
- d. If a student with a disability needs a specially designed physical education program, that program must be addressed in all applicable areas (i.e., components) of the IEP

When teaching students with emotional disturbance, it is recommended that physical educators incorporate _____ into the physical education curriculum as it teaches leadership skills, problem-solving, and communication.

- a. cooperative games*
- b. aquatics
- c. modified games
- d. disability sports

Newell's model of interaction involves all of the following variables except for:

- a. Curriculum*
- b. Environment
- c. Task
- d. Individual Characteristics

APPENDIX J

Content Acquisition Podcast: Least Restrictive Environment and Inclusion

Content Acquisition Podcast: Inclusion and Least Restrictive Environment Overview

**Inclusion and the
Least Restrictive
Environment (LRE)
in Physical Education
(PE)**

Topics for this Podcast

LRE vs. Inclusion


LRE Options

Strategies to Promote
Inclusion

Benefits of Inclusion:



Improved Motor/
Sport Skills

More Stimulating
Environment



↓



LRE vs. Inclusion


IDEA

Individuals with
Disabilities Education
Act


LRE vs. Inclusion

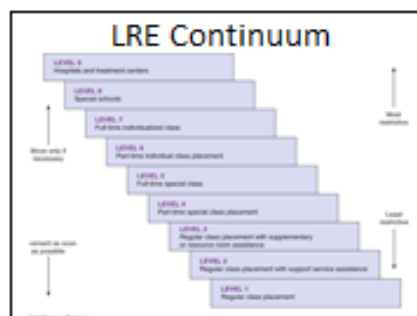



Physical Education
LRE Continuum




~~Physical Education
LRE Continuum~~






LRE Continuum




General PE with
and/or Without
Supports




Pull out
Services/Small
Group/One-On-One
Instruction

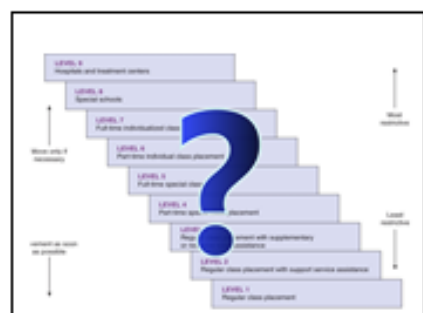
LRE Continuum



Segregated
Class/Separate
Schools



Home/Hospital
Setting



Norm-Referenced Test =
Eligibility

Criterion-Referenced Test =
Placement/Curricular Decisions

APPENDIX K

Content Acquisition Podcast: Federal Laws

Content Acquisition Podcast: Federal Laws Overview

Federal Laws and Adapted Physical Education (APE)



IDEA

Defines physical education (PE)
as the development of:

- Physical and Motor Fitness
- Fundamental Motor Skills
- Aquatics and Dance
- Individual/Group Games & Sports



Topics for this Podcast

IDEA

APE Teacher Role in
IEP Meeting

Section 504, PE &
Athletics



PE must be
specially
designed if
deemed
necessary

IDEA
Defines
Physical Education

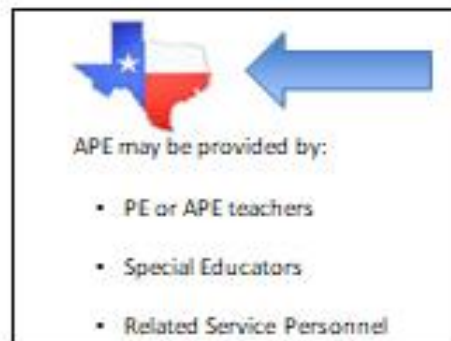
Eligibility for APE Requires:

Assessment



Consensus





APE = Direct Service



Direct Services =
Teach a
Curriculum

APE  Direct Service

APE  Related Service

APE = Direct Service

Direct Services:

Provide
Instruction

Teach a
curriculum




PT & OT = Related Service



Related Services =
Assist Students to
Access a
Curriculum



APPENDIX L

Content Acquisition Podcast: Teaching Practices

Content Acquisition Podcast: Teaching Practices Overview

Teaching Practices and Adapted Physical Education (APE)



Purpose of PE

3 Learning Domains:

- **Physiological:** Motor skills, sport skills, fitness skills
- **Affective:**
- **Cognitive:**



Topics for this Podcast

Benefits of APE

Roles/Responsibilities

Modifying the Learning Environment

Purpose of PE

3 Learning Domains:

- **Physiological:** Motor skills, sport skills, fitness skills
- **Affective:** Socializing, communication
- **Cognitive:**



PURPOSE



Teach Students to be Physically Active for a Lifetime

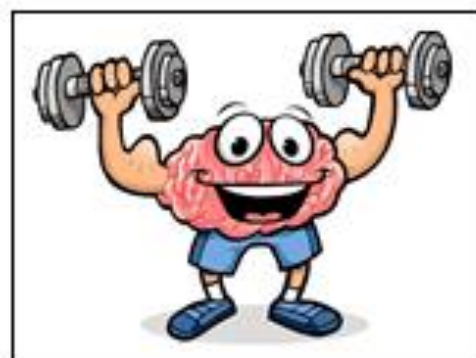
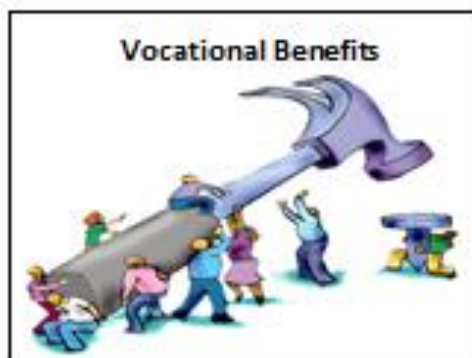
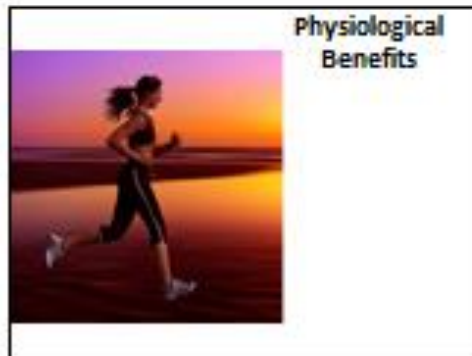


Purpose of PE

3 Learning Domains:

- **Physiological:** Motor skills, sport skills, fitness skills
- **Affective:** Socializing, communication
- **Cognitive:** Learn how to live a healthy/active life







APE Roles:

- Participate and Attend IEP Meetings
- Consult with PE teachers
- Implement Specially Designed PE
- Use Behavior Management Strategies






Indicates that the teacher has:

- Knowledge to teach PE to students with disabilities
- Taken college courses specific to APE
- 200 hours of teaching PE to students with disabilities
- Bachelor's degree with a major in PE