HANDBOOK FOR ADAPTING PHYSICAL EDUCATION ACTIVITIES FOR STUDENTS WITH COGNITIVE DISABILITIES

by

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Abstract

The overall goal of this thesis is to create a handbook that guides all teachers in creating and making adaptations for students with cognitive disabilities. Ten physical education teachers were surveyed on their use of adaptations for students with cognitive disabilities. The data was then analyzed to see which adaptations physical education teachers use the most. Three of the surveyed physical education teachers were interviewed and observed. A list of adaptations was sent to the ten physical education teachers to rank the adaptations according to their effectiveness and how easy they are to implement. The list of adaptations was also sent to fifteen general education teachers and they were asked to rank the adaptations based on their effectiveness and how likely they are to use those adaptations. The data from the surveys, interviews, observations, and rankings were all used to create the handbook. The handbook gives descriptions of adaptations, examples, samples, pictures, technology, and resources that all teachers can find useful. The handbook is a tool for intervention specialists to give teachers to guide their adaptation use for students with cognitive disabilities.
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CHAPTER I

Need for the Thesis Study

In America, about 4.6 million people have an intellectual disability (The Arc, 2011). About 6.4 million students are receiving special education services and of those students, 7 percent have an intellectual disability (IES, 2015). These statistics showcase the prevalence of students with intellectual disabilities in the United States. In response to the need to service these students, inclusion is becoming popular, which means students with intellectual disabilities are being included in general education classes. As a result of inclusion, the need for adaptations for students with intellectual disabilities is becoming more important to their success in school.

A majority of the literature written about adaptations for physical education is focused on the attitudes of the students with disabilities and the attitudes of peers in the same physical education classroom about their peers with disabilities (Block & Zeman, 1996; Goodwin & Watkinson, 2000). Most of the studies focused on what adaptations are being made and not on whether they are effective at meeting physical, social, and emotional needs and why. However, many of the studies focused on students with physical disabilities rather than cognitive disabilities. There is a need to study which adaptations are effective for students with cognitive disabilities in terms of social, emotional, and health benefits. This need is especially appropriate due to the number of students with cognitive disabilities in schools and the increased frequency that these students are being taught together with their peers without disabilities.

Purpose of the Thesis Study

Due to the dual demands of an increasing population of students identified with cognitive disabilities and legislation requiring them to be educated in the “least restrictive environment” schools have been including these students within the general education classroom whenever possible. As a result of inclusion, the need for instructional adaptations for students with cognitive disabilities is becoming more important to their success in school. All teachers must
be equipped to make adaptations to ensure their students’ success because it is highly likely they will be teaching students with cognitive disabilities. A traditional area of the school curriculum where such adaptations are necessary is physical education.

Flixercise, videos that get children moving while learning, discusses how physical activity is important for the health of all children, especially children with disabilities. For example, children with disabilities need to be included in physical activity, according to Flixercise, because it reduces their chances of health risks later in life such as coronary heart disease, hypertension, low stamina, type II diabetes, osteoporosis, back pain, and depression (Flixercise, 2012). This emphasizes the health importance of students with cognitive disabilities being included in physical education classes.

Nevertheless, in the US, students with cognitive disabilities are exempt from physical education in 45.1% of all middle schools (Lee, Burgeson, Fulton, & Spain, 2007). That means that almost half of the students with cognitive disabilities in the US are not receiving physical education. The primary reason for their exemption from physical education is their disability. Consequently, health risks for these students are increased due to their lack of participation in healthy physical activity.

This study provides physical education teachers and general education teachers with a handbook of effective adaptations and examples of how to use them in their classroom. The hope is that the large number of students with cognitive disabilities exempt from physical education will decrease because more physical education teachers will be equipped to educate these students. This handbook equips not only physical education teachers with strategies to make adaptations successfully in their classroom, but also general education teachers who can generalize these adaptations or include more physical activities in their classroom.
Delimitations

One important limit of the study is the small sample size of only ten physical education teachers surveyed. This small sample size may skew some of the trends we find in the data that may not be as significant or may be more significant with a larger sample size. Also, the data from the fifteen general education teachers asked to rank adaptations is a small sample size and may also affect the trends found in the data. The three physical education teachers who were interviewed and observed were from the collection of the ten physical education teachers. They were chosen based on the fact that they volunteered and were only observed once. Therefore, it is impossible to observe all the adaptations they may use within one or two class periods.

The educators chosen to survey, interview, observe, and rank adaptations were chosen based on convenience sampling. These people volunteered their time and were easy to reach. All of the physical education teachers surveyed were from Ohio and within the same area. Also, some of the teachers were from the same districts and mostly suburban, middle class school districts. There were not any teachers from inner city school districts. The fifteen general education teachers were from similar demographics as the physical education teachers. They were all chosen because they had volunteered from schools in Ohio. Some of them were within the same suburban, middle class school districts. Again, none of these teachers taught in inner city school districts. Teacher A (elem.) and teacher B (mid), who were interviewed and observed, worked within the same school district. The three physical education teachers were also chosen based on convenience sampling. Appendix C depicts the demographics of the three physical education teachers.

The data from the rankings of adaptations came from only four of the ten physical education teachers involved in the study. The physical education teachers’ rankings on how effective and how easy to implement these adaptations came from a very small sample size. It is possible that this data was skewed due to the small sample. The data from the general education
teachers’ rankings on how effective and how likely they are to use the adaptations came from fifteen different general education teachers. This sample size is larger than the sample of physical education teachers but is still small so the results may be skewed due to this small sample size.

Some of the delimitations of the study are due to sample size. The sample size may skew the data, however Patton has a contradictory opinion of sample size in qualitative studies. Patton wrote “There are no rules for sample size in qualitative inquiry” (Patton, 2002, p. 244). The sample size is relative to what you want to know, the purpose of the study, and what is useful. The small sample size achieved the purpose and goal of the study. The sample size was what was needed for the data to be useful (Patton, 2002).

Possible bias that may influence data collection or interpretation is that I am not a physical education teacher major and have not taken any courses on the subject. I may not fully understand the terminology and job requirements. This could influence data interpretation because I may not understand context in which a physical education teacher works.

**Definition of Terms**

Adaptation:

“A documented process that allows a student with special educational needs to participate in the prescribed provincial curriculum with changes in format, instructional strategies and/or assessment procedures that retain the learning outcomes of the curriculum” (Department of Education, Early Learning and Culture, 2012, para. 1).

Adapted Physical Education:

Adapted physical education is “an individualized program of physical and motor fitness; fundamental motor skills and patterns; and skills in aquatics, dance, and individual and group games and sports designed to meet the unique needs of individuals” (Winnick, 2000, p. 4).

Cognitive Disability:
In Ohio, an intellectual disability is referred to as a cognitive disability because it is anticipated that the term intellectual disability will be replaced with cognitive disability (Ohio Department of Education, 2015). According to the American Association on Intellectual and Developmental Disabilities (AAIDD) a cognitive disability is “characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills” (Carulla et al., 2011, para. 4).

IEP:

“The Individualized Educational Plan (IEP) is a plan or program developed to ensure that a child who has a disability identified under the law and is attending an elementary or secondary educational institution receives specialized instruction and related services” (DO-IT, 2015, para. 1).

Inclusion:

Inclusion in education occurs when children with disabilities and children without disabilities participate and learn together in the same class (PBS, 2012).

Physical Education:

IDEA defines physical education as the “development of (a) physical and motor fitness, (b) fundamental motor skills and patterns, and (c) skills in aquatics, dance, and individual and group games and sports” (as cited in Winnick, 2017, p. 13).

Summary

The need for the thesis study is that there is a large population of students with cognitive disabilities in the United States and little research has been done on which adaptations used in physical education are effective. The purpose of this study is to create a handbook that will guide physical education teachers to use adaptations in their inclusion classes. These adaptations are generalizable to academic inclusion classes and general education teachers can use these as
well. The study is primarily limited due to the small sample size as explained in delimitations.

The definition of important terms used throughout this study is given.
CHAPTER II

Review of the Literature

Cognitive Disabilities

According to the American Association on Intellectual and Developmental Disabilities (AAIDD) a cognitive disability is “characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills” (Carulla et al., 2011, para. 4). Intellectual functioning consists of mental capacity. Examples of mental capacity are limitations in learning, reasoning, and problem solving. Adaptive behavior refers to conceptual, social, and practical skills that people learn and perform in their everyday lives in order to be functioning members of society. Cognitive disability typically has an age of onset before age 18, during the developmental years (American Association on Intellectual and Developmental Disabilities, 2013).

Nationally and worldwide the term often used to describe a cognitive disability is intellectual disability. Intellectual is an umbrella term that includes cognitive functioning, adaptive behavior, learning that is age appropriate, and established standards that cultures demand of daily life (Carulla et al., 2011). However, in Ohio, an intellectual disability is referred to as a cognitive disability because it is anticipated that the term intellectual disability will eventually be universally replaced with cognitive disability (Ohio Department of Education, 2015). I was educated in Ohio and I plan to teach in Ohio, so I will be referring to an intellectual disability as a cognitive disability to keep terms consistent with the state in which I reside.

Severity Levels

The four severity levels for cognitive disabilities are mild, moderate, severe, and profound. A student diagnosed with a mild cognitive disability has an IQ range of 55-70. In order to be diagnosed with a moderate cognitive disability a student must have an IQ range of
A severe cognitive disability is diagnosed with a student having an IQ between 25-40. A profound cognitive disability has an IQ less than 25 (Tasse, 2013)

Individuals with mild cognitive disabilities are able to participate and contribute to their families and communities. These individuals have important relationships and have the possibility of marrying and raising children. They can live independently but these individuals may need some support and help. Individuals with a mild cognitive disability can have open or supported employment, where assistance in obtaining and maintaining employment is provided. They often learn to read and write at a functional literacy level (Tracy, n.d.).

Individuals with moderate cognitive disabilities have important relationships in their lives and can enjoy activities with their family and friends. They can understand daily schedules when provided with visual prompts. These individuals can make choices about things they want and can develop independent personal care skills. Individuals with moderate cognitive disabilities can recognize some words in context and common signs. These individuals will need lifelong support (Tracy, n.d.).

Individuals with severe or profound cognitive disabilities recognize familiar people and can have strong relationships. They often rely on gestures, facial expressions, and body language to communicate because they have little or no speech capabilities. These individuals need lifelong assistance with personal care, communication, and activities (Tracy, n.d.).

History

In 1799 France, Eduard Seguin created a program to educate individuals with cognitive disabilities that emphasized moral physiological education. He designed behavior management and individualized instruction methods and we still use many of these methods today. In 1842, Johann Guggenbuhl created the first residential institution for individuals with cognitive disabilities in Switzerland. In the mid-1800s institutions and asylums were established to rehabilitate, train, and reintegrate individuals with cognitive disabilities into society. Despite
such enlightened efforts, unfortunately, in the 1800s, individuals with a cognitive disability were sterilized, institutionalized, and segregated because it was thought that cognitive disabilities were inheritable (Harbour & Maulik, 2010).

In the 1900s, psychological tests were developed that provided a more accurate way to diagnosis cognitive disabilities. Alfred Binet developed the first psychological test in 1905. However, this led to an increase in institutionalization. Individuals with a mild cognitive disability became identified when they would not have been previous to psychological testing. In the 1930s and 1940s it was discovered that cognitive disabilities were not inheritable and the effort to institute sterilization diminished. Causes of cognitive disabilities include monogenetic factors, which are the result of a single abnormal gene, and environmental factors. Some non-genetic factors are metabolic disturbances and phenylketonuria, which is an amino acid metabolism disorder. Environmental factors can be infections, trauma, and endocrine disturbances (Harbour & Maulik, 2010).

In the 1950s, individuals with cognitive disabilities began to be socially accepted and received compassion and financial support from organizations (Harbour & Maulik, 2010). Due to enlightened attitudes towards individuals with cognitive disabilities, the Education Amendments of the Elementary and Secondary Education Act (ESEA or PL-94-142) were passed in 1974. These amendments provided funding for programs that were designed for students who were disadvantaged and students with disabilities and required states to establish full education opportunities for students with disabilities (Yell, Rogers, & Rogers, 1998). In 1975, The Education for All Handicapped Children Act (EAHCA) gave individuals with cognitive disabilities a free public education. Legislation and education began to stress deinstitutionalization of individuals with cognitive disabilities and push for early intervention, community-based rehabilitation, and human rights (Harbour & Maulik, 2010). The Individuals with Disabilities Education Act (IDEA) renamed and edited the EAHCA. IDEA changed the
language of the law to people-first language, created a separate category for students with autism and traumatic brain injury, and required that a transition plan be created on students’ individualized education programs (IEP) by age 16. This law was also reauthorized in 1997 to mandate measurable goals, offer mediation to parents and educators to resolve disputes, and establish behavior plans and disciplinary options for students with disabilities (Yell, Rogers, & Rogers, 1998).

Students with cognitive disabilities can receive special education services through an IEP. IEPs are created and reviewed in annual IEP meetings. The parent, education director, special education teacher, general education teacher, and many other professionals are allowed to attend IEP meetings. Essentially, an IEP documents the services from the district to the student and parents. The current performance level of the student is explained in the IEP. The services provided, how often, when, etc. are also laid out in the IEP. Goals are written in the IEP to measure the student’s progress. Accommodations and modifications, which are changes made to the classroom environment to assist the student, are clearly explained within the IEP. If the student is 16 years of age, or if a resident of Ohio then 14 years of age, a transition plan and goal is included in the IEP (Special Education Guide, 2016). A transition plan explains the goals a student has for after completing high school.

**Diagnosis**

Clinical Assessment and standardized testing of intelligence is used when diagnosing a cognitive disability. The severity of the cognitive disability is not solely based on IQ scores, but also adaptive functioning. The IQ score of an individual with a cognitive disability is about two standard deviations or more below the average population; this is about an IQ score of 70 or less. Conceptual, practical, and social intelligence is measured to base the diagnosis on the functioning that is needed for everyday living (American Psychiatric Association, 2013).
Inclusion

Inclusion in education occurs when children with disabilities and children without disabilities participate and learn together in the same class. Often, when people think of special education they think of segregated classrooms. However, this concept of educating students in separate classes or separate schools has changed over time. Now we simultaneously educate students with and without disabilities because there are academic and social benefits for all students involved (PBS, 2012).

There are three principles that guide inclusion to achieve the greatest quality. One principle is believing that all children belong. This means that every child is valued and deserves the same opportunities. Another principle is that every child learns differently, however children with disabilities may require more intensive or specialized assistance than children without disabilities. The last principle is that every child has the right to be included in an appropriate educational setting. IDEA clearly states that each child must have access to the general education curriculum and is to be educated with children without disabilities (PBS, 2012).

Levels of Inclusion

There are three levels of inclusion in education. The first level is physical integration. This is where an individual has access to buildings and different programs. The Architectural Barriers Act of 1968 “mandated that buildings receive federal funding to be made architecturally accessible to people with disabilities” (NCHPAD, 2013). This allowed for the physical inclusion of individuals with disabilities.

The second level of inclusion is functional inclusion. Functional inclusion gives individuals the opportunity to be successful in any environment. The Americans with Disabilities Act (ADA) mandated that recreation programs make accommodations for individuals with disabilities. The goal of this act was to give individuals with disabilities the
same opportunities for success and enjoyment as individuals without disabilities (NCHPAD, 2013).

The final level of inclusion is social inclusion. This level of inclusion can only be achieved when inclusion is fully incorporated and has become a universal value. Social inclusion is an individual’s positive participation and interaction amongst their peers. Friendships are made during this level of inclusion and all individuals are internally motivated. This level of inclusion cannot be mandated (NCHPAD, 2013).

**Criticisms and Concerns Regarding Inclusion**

Educators face many issues when practicing inclusion in their schools. Some of these issues are resources and finances, admissions and capacity, balancing students needs, recruitment and retention, and expertise and professional development. Frequently, there is a lack of financial resources to include students in schools. Ironically, because funding is based on need, often when students are successful academically, then the funding begins to decline. Due to a lack of resources, schools must make judgments on which students with disabilities will be admitted. Schools must find a balance between meeting one student’s needs and admitting another student who requires services that may tip the balance. Furthermore, schools may have a lack of experienced and qualified educators for students with disabilities (MacBeath, Galton, Steward, MacBeath, & Page, 2005).

Teachers confront a multitude of concerns when including students with disabilities in their classrooms. Some of these concerns are the demand of differentiation, inadequate planning time, lack of expertise, and quality of supports such as paraprofessionals and assistive technology. A lack of supports can cause an overload on teachers in terms of workload and time spent on a specific student in class. Teachers might focus too much on meeting the needs of one student that other students’ needs may not be met. Students whose behaviors become a distraction in the classroom can disrupt the learning process. Finally, teachers may lack adequate
Opponents of inclusion believe that communication, independent living, self-management, and social skills cannot be adequately taught in a general education classroom. They believe these can only be taught through individualized instruction, which is more difficult to reach in a general education setting. They also believe that general education teachers do not have the specialized training that is required to teach these skills (Murphy, 1996).

Special education goals have shifted away from independence, competence, and normalization while shifting towards inclusion. Students have become more dependent on special education programs, modifications, and adaptations in general education classrooms as a result. Some critics believe that inclusion gives an illusion of normalization while excluding competence from special education goals. Critics of inclusion claim that educators and parents do not remove some accommodations and services in order to challenge students to become more independent and competent in general education. They claim that services and accommodations become like a “crutch” to students with cognitive disabilities and that they should learn to live without these “crutches” (Kauffman & Hallahan, 2005).

Benefits for Students with Cognitive Disabilities and Students without Disabilities

Students with cognitive disabilities have many social, emotional, and physical benefits from inclusion. Students can learn functional skills and independent behaviors such as social, daily living, and communication skills in an inclusion classroom. They also learn successful social skills required to participate and live in a community (NCHPAD, 2013). Another social benefit is that students with cognitive disabilities are more accepted by their peers during recreational activities (MacBeath, Galton, Steward, MacBeath, & Page, 2005). Salend and Duhaney (1999) reported that students with severe disabilities who were educated in a general physical education classroom had more social contacts and friendships with peers without
disabilities than if they were in a self-contained classroom. Social skills are necessary for individuals during employment because they need to be able to communicate effectively with coworkers, employers, and customers.

It is also important that students with cognitive disabilities receive adequate exercise because they typically have lower levels of cardiovascular fitness and muscular strength. They also have had higher levels of body mass compared to students without disabilities (Pitetti, Beets, & Combs, 2009). Therefore, students with disabilities need to be included in physical activity, according to Flixercise, because it reduces their chances of health risks later in life such as coronary heart disease, hypertension, low stamina, type II diabetes, osteoporosis, back pain, and depression (Flixercise, 2012).

Students without disabilities also benefit from inclusive classrooms. For example, they develop a better understanding and acceptance of individuals with disabilities (MacBeath, Galton, Steward, MacBeath, & Page, 2005). Students without disabilities are shown to improve their capacity for compassion, kindness, and respect. They develop social sensitivity and skills to live in diverse communities. They also learn to value individuals’ contributions and efforts (NCHPAD, 2013). Students without disabilities who were placed in an inclusion classroom thought that they were able to better understand differences between individuals and appreciate diversity. The friendships between students with disabilities and students without disabilities satisfied the personal needs of both students. Best of all, students without disabilities reported finding companionship in these friendships (Salend & Duhaney, 1999).

Physical education provides social benefits for students with cognitive disabilities and without disabilities such as developing trust, a sense of community, empathy, responsibility, and cooperation because of the need for students to work collaboratively in activities (Bailey et al., 2006). These skills are believed to help students “develop resiliency against difficult life circumstances” (Bailey et al., 2006). Participation in a physical education class has seen to
reduce anti-social and criminal behavior and instead, improve students’ attendance, behavior, and attitude (Bailey et al., 2006).

Inclusion in a physical education classroom has also led to emotional benefits of students with cognitive disabilities and students without disabilities. Participation in physical activity improves self-esteem, self-perception, and psychological well-being (Bailey et al., 2006). Regular physical activity reduces stress, anxiety, and depression (Bailey et al., 2006).

Students with cognitive disabilities and students without disabilities gain cognitive benefits from being included in a physical education class. Physical education improves a student’s mental alertness, academic performance, and readiness and enthusiasm to learn (Bailey et al., 2006). Historically, when the time for physical education was increased in a school day, students academic performance had small increases as well (Bailey et al., 2006). In schools where physical activity levels are higher, the school performs higher academically than a school with less physical activity (Bailey et al., 2006). Cognitive functioning increases during physical activity because there is an increase in blood flow to the brain, which increases levels of arousal and stimulated brain development (Bailey et al., 2006). There is also a positive correlation between physical activity and concentration (Bailey et al., 2006).

Students with cognitive disabilities and students without disabilities can have similar benefits from inclusion in physical education. A health benefit from inclusion in a physical education class is that there is a positive relationship between childhood physical activity and bone strength, which can prevent osteoporosis later in life (Bailey et al., 2006). In addition, adolescent physical fitness is positively correlated with adult cardiovascular health (Bailey et al., 2006). Inclusion in physical education classes benefits both students with cognitive disabilities and students without disabilities because they learn valuable social skills, there are also emotional and health benefits.
Adapted Physical Education

IDEA defines physical education as the “development of (a) physical and motor fitness, (b) fundamental motor skills and patterns, and (c) skills in aquatics, dance, and individual and group games and sports” (as cited in Winnick, 2017, p. 13). IDEA required that students with disabilities have access to physical education and that if adaptations need to be made then specially designed instruction must be created to meet the students’ needs (Winnick, 2000). This is where adapted physical education comes in. Adapted physical education is “an individualized program of physical and motor fitness; fundamental motor skills and patterns; and skills in aquatics, dance, and individual and group games and sports designed to meet the unique needs of individuals” (Winnick, 2000, p. 4). Physical education that is considered adapted consists of modifications of objectives, activities, and methods in order to meet the needs of individual students. Students who have an IEP may have individualized instruction for physical education included in their IEP (Winnick, 2000).

Adapted physical education is meant to enhance self-actualization in students. This means that adapted physical education provides personal development and benefits to society. This leads to producing students who are physically educated and follow active and healthy lifestyles. Students with emotional problems greatly benefit from physical activity. Also, all students’ well being is increased through physical activity. Programs for students with disabilities must give these students an equal opportunity to attain the same results as students without disabilities. Students with disabilities must gain the same benefits and reach the same levels of achievement as students without disabilities in these programs. Programs cannot isolate or separate individuals with disabilities from their peers so the individuals with disabilities must be put in the least restrictive environment. Programs must be accessible to all students so environmental and architectural barriers must be removed (Winnick, 2000).
History of Inclusion in Physical Education Classrooms

The idea of individualizing physical education to meet the needs of specific students is fairly new. A historical viewpoint of physical education consisted of a medically oriented rationale for physical education. Physical education has shifted from a medical viewpoint to a sports-centered and whole child perspective. Typically, physical education programs consist of sports and games. Research indicates that perceptual-motor activities, which require students to use their brain and body to accomplish tasks, increased through physical education, especially for students with learning disabilities (Winnick, 2000).

The attention to physical education for students with disabilities has increased since the legal right of individuals to have a free and appropriate education was established. This allowed for programs for toddlers and infants, increased participation in sports regarding students with disabilities, and physical education was mandated for people ages three to twenty one. Legislation further mandated inclusion classrooms for physical education. Thus, enabling students with disabilities to be included in the general physical education classroom (Winnick, 2000).

The least restrictive environment aspect in IDEA must be considered when designing adapted physical education. As with academic classes, when it is appropriate, students should be included in general physical education classes. Adapted physical education can be integrated in a general physical education class (Winnick, 2000).

Section 504 of the Rehabilitation Act requires that physical education programs for students with disabilities must be equally effective as the programs for students without disabilities. In order to make these programs equal, they must take place in the most integrated environment as possible based on the student’s needs. Under Section 504, students with disabilities who do not require special education and services still receive accommodations, if
necessary, in physical education programs (Winnick, 2000). Some students who do not qualify for an IEP can receive services under a 504 Plan.

**Statistics on Students with Cognitive Disabilities in Physical Education**

Students with cognitive disabilities are in 62.4% of schools in the US in addition to other long-term physical or medical disabilities. Within these schools, 87.2% of these schools include 504 plans and IEPs in physical education for those students. In these schools, 77.2% of those students participate in inclusion physical education classes, 43.8% participate in adapted and inclusion physical education classes, and 31.3% participate in a separate adapted physical education class. Figure 2.1 depicts the breakdown of student participation in physical education. Only 44.1% of these schools had an adapted physical education teacher or specialist teaching adapted physical education classes. The majority of schools had a regular physical education teacher teaching adapted physical education. Some schools had occupational or physical therapists, special education teachers or aides, or a regular classroom teachers teaching adapted physical education. In inclusion classes, 60.9% of these schools had a physical education teacher assisted by a special education teacher’s aide. Other professionals who assisted a physical education
teacher in an inclusion class in these schools were special education teachers, another physical education teacher, a physical or occupational therapist, an adapted physical education teacher, or a regular classroom teacher (Lee, Burgeson, Fulton, & Spain, 2007).

In the US, 22.9% of required physical education classes were inclusion classes with students with cognitive, physical, or mental disabilities. Less than 30% of these inclusion physical education classes had an adapted physical education teacher working with the students with disabilities and about half of the inclusion classes had an aide assisting the students with disabilities. In terms of adaptations in these inclusion classes, about 85% of the physical education teachers simplified the difficulty of the material taught when teaching students with cognitive disabilities. Adaptations such as modeling, practice, and repetition were used with students with cognitive disabilities 76.8% of the time. About 73% of physical education teachers used modified assessments for students with disabilities. Peer teaching was used almost 70% of the time in the physical education inclusion classes. Modified equipment or facilities was used 57.4% of the time in an inclusion physical education class (Lee, Burgeson, Fulton, & Spain, 2007).

In physical education classrooms, 91.5% of states require 504 plans or IEPs for students who qualify. About 89.6% of states required schools to include students with disabilities in general physical education classes. Adapted physical education is only required by 87.5% of states. About 87% of states require using modified equipment in an inclusion physical education class and 81.6% of states require using modified assessments for students with disabilities. Only 74.5% of states require the use of teaching assistants in an inclusion physical education class (Lee, Burgeson, Fulton, & Spain, 2007).

Despite their documented need for physical activity, one of the most common reasons students are exempt from physical education requirements is due to a cognitive disability (Lee, Burgeson, Fulton, & Spain, 2007). Out of the 80.4% of states that require physical education,
25% of those states have a policy that allows students to be exempt from physical education. Out of that 25%, 2.6% of states have cognitive disability as a reason for students to be exempt from physical education. About 23.1% of districts within those states exempt students with cognitive disabilities from a middle school physical education. As a result, 45.1% of middle schools exempt students with cognitive disabilities from physical education (Lee, Burgeson, Fulton, & Spain, 2007).

In the US, 78.4% of states’ middle school physical education classes implemented goals, objectives, or expected outcomes for all students. A policy that specified the maximum student to teacher ratio in physical education classes was adopted by only 31.4% of states (Lee, Burgeson, Fulton, & Spain, 2007).

Training

In order for someone to become an adaptive physical education teacher they must pass the APENS (Adaptive Physical Education National Standards) examination. However, candidates must meet specific requirements in order to be eligible to take the examination. One requirement is that the candidate must have a bachelor’s degree in physical education. The candidate must have a valid and current teaching certificate. Another requirement is that the candidate must complete a 12 credit hour course in adapted physical education. The candidate must show proof of at least 200 hours of documented experience of providing physical education to students with disabilities. Once the individual passes the APENS exam they are certified for 7 years and receive the CAPE (Certified Adapted Physical Educator) title. Only 14 states have defined an endorsement or certification in adapted physical education (APENS, 2008).

Physical Education Adaptations to Meet the Needs of Students with Cognitive Disabilities

Many adaptations are used with students with cognitive disabilities in physical education classrooms. These adaptations are used to allow for successful inclusion of students with
cognitive disabilities into general physical education classes and in adapted physical education classes to help students be successful.

**Direct Instruction**

The adaptations included in this category are used for students with cognitive disabilities during direct instruction. Direct instruction is teacher directed and is a straightforward, explicit teaching technique (TeAchnology, n.d.). For example, one on one instruction is used for students with cognitive disabilities because it allows teachers to individualize instruction. Through direct instruction, teachers can address the student’s specific needs and strengths. Repetition is another adaptation used in direct instruction. This can be the repetition of rules, instructions, skills etc. often done during direct instruction to students. Teacher modeling is also a common adaptation used because this allows teachers to model skills that the student needs to learn. It also allows teachers to tailor their instruction to individual student’s needs. Along with teacher modeling, peer modeling is used during direct instruction. This is where another student without a disability in the class models the skills and instruction required by the teacher. Hand over hand is the final common adaptation used under the category of direct instruction. Hand over hand is physically moving the student’s hands to demonstrate how to complete a skill.

**Operational Guidelines**

Operational guidelines include common adaptations that aid in how the class is run. This can include physical objects to denote boundaries, set up of the class, rules, etc. Written directions are an adaptation in this category because students are able to read what they are supposed to be doing. Pairing this with the teacher verbally explaining directions allows for greater retention from the student. Learning stations are a set up in the classroom where students rotate to the different stations and complete different activities there. Shortened activity times prevent fatigue and addresses attention issues in students with cognitive disabilities. Visual boundaries can be cones and other markers to physically represent an area of play or where a
Extra credit rewards are used by general and physical education teachers to help motivate students. A common extrinsic reward system is using a token system where students earn tokens as a reward and then cash them in for prizes. Start and stop cues can be something like a whistle to stop the activity in progress and bring the students’ attention to the teacher.

Physical/Visual

Physical/visual adaptations require advanced preparation time to create these adaptations. Picture directions are an example of physical/visual adaptations. Some students with cognitive disabilities may not be able to read or may respond better to a picture than written or verbal directions. Cue cards are an adaptation that can be used as a visual reminder for students of how to do a skill. Teachers can create cue cards of a specific step that students might be struggling with while trying to execute a specific skill. Picture schedules are visual references for students to know what they are supposed to do next after they complete one activity. Checklists allow students to work more individually because instead of asking the teacher what to do next they can reference their checklist. Finally, task cards are physical reminders of what students should be doing and how to do it.

Guidelines for Creating Effective Adaptations

Adaptations in physical education classes made by physical education teachers for students with cognitive disabilities is considered differentiating instruction to meet individual student’s needs, interests, and abilities. The physical education teacher can adapt or modify the content, process, environment, and assessment for the student (PE Central, 2016b). The purpose of adapted physical education is to make adaptations for students with disabilities in order for them to be successful in a physical education class. Universal design and instruction is used when teaching students with disabilities because its purpose is to create instructional goals, methods, materials, and assessments that are flexible enough to meet each individual student’s
needs. Physical education teachers must accommodate for all levels of functioning and learning within their class of students. Adjustments must be made according to the student’s skills set and learning needs and instruction should be focused on the abilities of each student (Connecticut State Department of Education, 2016).

Adaptations are typically divided into five different categories: adapting skill sequences, providing personal assistance, adapting rules, and adapting the physical environment. Teachers can use materials and devices to adapt a student’s physical education program. One such example of this is the cue cards from the physical/visual adaptations category. Teachers can adapt skill sequences to meet the student’s skill set. In terms of adapting the curriculum, physical education teachers can adjust student groups, the environment, goals, materials, and outside individual assistance from a peer, paraprofessional, etc. (Udvari-Solner, 1992).

According to Carrera (n.d.), adaptations in a physical education classroom can also be placed into these five categories: instructional presentation, classroom organization, student response, safety considerations, and student motivation. Instructional presentation can be prompts such as the cue cards mentioned above. Classroom organization can include equipment and student groupings. Student response adaptations can be adapting assessments that allow students to respond in ways that best demonstrate their knowledge. Adaptations that consider safety can be materials and procedures used in the classroom. Student motivation adaptations can be extrinsic rewards. The adaptations chosen to be included fit best into these five categories. The adaptations that best fit under instructional presentation could arguably be all the adaptations under the three categories created for this study: direct instruction, operational guidelines, and physical/visual. Classroom organization can include the category of operational guidelines from the survey and the adaptations of one on one, cue cards, checklists, peer modeling, and teacher modeling. The adaptation included in the survey that fits under the category of student response is checklists. All three categories, direct instruction, operational
guidelines, and physical/visual, fit under the safety considerations adaptations. Extrinsic rewards go under the student motivation adaptation category (Carrera, n.d.).

According to Udvari-Solner (1992), six steps have been identified to help teachers make curricular adaptations. The first step is to create a student centered collaborative planning team. This will allow professionals to share responsibilities and create the best adaptations to fit the student’s needs. The second step is to gather an abundance of information about the student’s abilities. The instructional team must have a clear understanding of the student’s abilities in a variety of environments before making decisions. The third step is to gather information about the general education environment the students will be spending time in. This information will guide the team in making decisions concerning the most effective adaptations for the student. The fourth step is to observe the student in the general education setting. The observation is used to determine differences in the student’s learning needs and the general education practices. The fifth step is to create adaptations that fit the student’s learning needs. The final step is to continue communication between members. These steps are used to ensure that the adaptations made continue to be effective (Udvari-Solner, 1992).

The previous six steps mentioned are reflective of an adaptations framework called SETT. SETT stands for Student, Environments, Tasks, and Tools. It allows the collaborative group discussed above to work together and provide the student with adaptations to be successful in the general education environment. Each individual on the collaborative team shares their knowledge about the student, the different environments the student is in, and the tasks required of the student. All this knowledge allows the team to choose the most effective adaptations for the student. This framework is used to match adaptations to meet individuals’ needs. It is often used to match assistive technology with students. This framework informs all educators of the purpose of the adaptations for the individual, how to use them, and when to use them (Bryant & Bryant, 2012).
Benefits of Adaptations

Flixercise discusses how physical activity is important for the health of all children, especially children with disabilities. For example, children with disabilities need to be included in physical activity, according to Flixercise, because it reduces their chances of health risks later in life such as coronary heart disease, hypertension, low stamina, type II diabetes, osteoporosis, back pain, and depression (Flixercise, 2012).

The adaptations under the category of instructional presentation can have many benefits such as creating relationships between students with cognitive disabilities and their peers without disabilities or teacher/aides. Other benefits are that it simplifies abstract concepts and helps students learn to self-regulate. Benefits from the classroom organization adaptations also include creating relationships and increasing communication between students with and without cognitive disabilities and the teacher. These adaptations increase independence in students with cognitive disabilities. Benefits from student response adaptations can include an increased self-esteem, confidence, and other emotional benefits. It also increases independence of students with cognitive disabilities. Student motivation adaptations provide benefits to students with cognitive disabilities such as increased interest and engagement in physical education. It benefits students’ success and increases their confidence. Motivational adaptations will increase the likelihood of students generalizing these healthy habits outside of the physical education classroom and increase their physical and emotional well-being. All adaptations made for students with cognitive disabilities should be safe for the student (Carrera, n.d.).

Assessment of Performance of Students with Cognitive Disabilities in the Inclusion Setting

The physical education curriculum promotes three types of assessment: student performance, teacher self-assessment, and curriculum improvement. Student performance assessments are when students are assessed for the purpose of grouping and selection. Teacher self-assessments are when teachers monitor the efficacy in their physical education lessons.
Curriculum improvement assessments incorporate monitoring instructional methods and materials in order to improve their effectiveness (Department of Education and Early Childhood Development, n.d.).

**Relationship to IEP**

The first step in developing a student’s IEP is assessment because it identifies the needs of the student and measures student performance. Assessments are used to make placement and planning decisions concerning the student. Assessment must be the foundation for instructional decisions for a student with a cognitive disability in order for him/her to be successful in the general physical education classroom. IDEA mandates that any assessments given to students without disabilities must also be given to students with disabilities or alternate assessments must be given (PE Central, 2016a).

On the student’s IEP, it must indicate whether or not the student is participating in state and nationwide physical education assessments. There are three options for students with cognitive disabilities: participation in the same standardized test as students without disabilities, participation in the standardized test with appropriate accommodations, and alternative testing. When students with cognitive disabilities participate in the standardized test then the same test and testing methods are given to the students with a cognitive disability as his/her peers without disabilities. When using accommodations, the student with a cognitive disability takes the standardized test but are given appropriate accommodations while taking that test, such as extended testing time. These accommodations must be determined by the IEP team and indicated on the IEP. When an alternate assessment is used, the student with a cognitive disability does not participate in the national or state standardized test. The IEP team must explain on the IEP why the standardized test is inappropriate and how the student will be assessed. The alternative assessment must measure the same content (Winnick, 2011).
Assessments are used to measure progress towards annual goals established in the IEP. An efficient way to measure the student’s progress towards goal is to use a checklist where the physical education teacher can check that the student achieved, needs improvement, and working to achieve their goals (Winnick, 2011).

**Guidelines for Creating Assessments for Students with Cognitive Disabilities in Physical Education**

Before creating an assessment and setting expectations for a student with a cognitive disability, the physical education teacher must complete a pre-assessment that determines the student’s prior knowledge, skills, interests, and what skill and knowledge the student must master. Assessment must be an ongoing process and completed almost daily in order to adjust instruction methods to increase student success and provide immediate feedback to the student. Seeking information from the parents of the student can give a teacher unique and important information (Ellis, Lieberman, & Le Roux, 2009).

Educators can use many different types of assessments when assessing students with cognitive disabilities in the physical education classroom. Observations in the form of anecdotal recordings, checklists, and rating scales can be used to assess students with cognitive disabilities’ physical education. Other assessments used by physical educators include task cards, surveys, progress charts, conferences, and interviews. Students can conduct self-assessments based on journals, logbooks, diaries, and activity records. When physical education teachers use the adaptations of peer modeling, peer assessments may be very useful when evaluating students with cognitive disabilities. Tests and portfolios, which are often used by general education teachers, can also be used by physical education teachers (Department of Education and Early Childhood Development, n. d.).
Summary

Chapter II reviews the literature that is currently available concerning topics related to this study. Presented is research regarding cognitive disabilities severity levels, the history of the disability, and how it is diagnosed. Inclusion is currently a popular topic in education. The levels of inclusion are discussed along with criticisms and concerns regarding inclusion. There is research that supports inclusion as benefiting students with cognitive disabilities and students without disabilities. Adapted physical education is on the rise for physical education today in order to make physical education successful for students with disabilities. Inclusion in physical education, statistics on students with cognitive disabilities in physical education, and the training required to be certified in adapted physical education is discussed. The adaptations in physical education that meet the needs of students with cognitive disabilities are organized into three categories: direct instruction, operational guidelines, and physical visual. Guidelines for physical education teachers to create effective adaptations in their classes are presented. The benefits of adaptations for students with cognitive disabilities and students without disabilities. In physical education, guidelines for creating assessments for students with cognitive disabilities are given and the relationship of these assessments to the IEP.
CHAPTER III

Methodology

Qualitative research was the primary methodological approach used for this project. This method is defined as a “type of research that produces findings not arrived at by statistical procedures or other means of quantification” (Strauss & Corbin, 1990, p. 10-11). According to Strauss and Corbin, it is a way to study and think about social reality. In order to collect data for qualitative analysis a multipronged approach was used. This included, survey questionnaires distributed to physical education teachers, survey questionnaires to general education teachers, semi-structured interviews with selected physical education teachers and in person observations of selected physical education classes. Using more than one sampling approach and multiple types of data strengthens a study. This mixing of methodologies is called triangulation and allows for validity checks of data. In this study, triangulation is achieved through varying surveys, interviews, and observations (Patton, 2002). This chapter describes the process used for data collection.

Introduction

What are the universal adaptations that make a physical activity effective for students with cognitive disabilities? This is one question I sought to answer through my research. Another question I wanted to answer was what adaptations are most prevalent that are being made by physical education teachers to encourage physical activities for students with cognitive disabilities? This led me to ask another question: Of the most prevalent adaptations being made, which adaptations are the most generalizable for general education teachers to use in their classrooms? In order to address these questions, I surveyed and interviewed physical education teachers as a way to discover ideas to create a handbook of adaptations for students with cognitive disabilities for general education teachers because adaptations being made by physical
education teachers could provide an insight into general adaptations all teachers can make in their classroom.

**Subjects of the Study**

The ten physical education teachers selected to complete the survey (Appendix B) were chosen based on a recommendation from experts that they be included because of their exemplary use of adaptations. Their participation was completely voluntary and if they agreed they were asked to sign a consent form and fill out the survey. There were four males and 6 female physical education teachers who completed the survey. The average number of students the ten physical education teachers taught a year is about 400. The range is 8 students to 800 students a year that they taught. The average number of students taught was split into three categories: 8-300 students, 350-500 students, and 550-800 students. The number of physical education teachers that teach an inclusion class out of the ten was eight. This means that two of the physical education teachers surveyed did not teach an inclusion class. The average number of students with cognitive disabilities that the ten physical education teachers taught is 26. The range of students with cognitive disabilities is between 4 and 60 students. The age range of students taught by the ten physical education teachers spans from age 3 to age 18. The age group that was most commonly taught between the ten physical education teachers was 11-13. The average number of years the male teachers taught was 17.5 and the average number of years the female teachers taught was 14.3. The average number of years of teaching experience by the combined ten physical education teachers surveyed was 15.6 years. The range of years taught by the physical education teachers was 1 to 30 years. The years the physical education teachers taught were grouped into three categories: 1-10 years, 11-20 years, and 21-30 years. The ten physical education teachers came from ten different schools, but some of them are in the same district and all were from the central and northeast Ohio areas.
The three physical education teachers interviewed were chosen from the ten physical education teachers who participated in the study based on how many years they have been teaching and their responses to the survey. Teacher A (elem.) has been teaching for 3 years and is a female. She taught students ages 3-9 and approximately 800 students a year. Of the 800, she taught about 50 students with cognitive disabilities a year and taught designated inclusion classes. She was observed teaching first and second grade classes in an elementary school.

Teacher B (mid.) is a male physical education teacher who has taught for 12 years. He taught students ages 11-14 and approximately 360 students a year. He taught designated inclusion classes and only about 6 students with cognitive disabilities a year. Teacher A (elem.) and B (mid.) taught in the same school district but teacher B (mid.) taught at the middle school.

Teacher C (elem.) is a female teacher who has taught for 30 years. She taught students ages 6-13 and taught approximately 450 students a year. She taught about 5-10 students with cognitive disabilities in designated inclusion classes a year. She was observed teaching first graders in an elementary school. Appendix C is a chart of the demographics of the three teachers interviewed.

The ten physical education teachers were then asked to rank the 16 adaptations from most effective to least effective and easiest to implement and most difficult to implement. Only four physical education teachers responded to this survey. Fifteen general education teachers were asked to rank the adaptations from most effective to least effective and most likely to use and least likely to use. Some of the fifteen general education teachers teach in the same district and schools. The teachers are from all levels: elementary, middle, and high school. These teachers were chosen based on volunteers and are from the northeast and mid Ohio areas.

The ten physical education teachers were also sent the handbook to review and assess with the rubric found in Appendix D. The fifteen general education teachers were also sent the handbook to review and assess with the rubric. Out of the twenty-five teachers, only two responded. The rubric response format was anonymous so it is unknown if they were general or
physical education teachers. The response format was anonymous so the teachers felt they could honestly answer.

**Data Gathering Procedures**

Data was initially gathered through surveys given to ten physical education teachers chosen based on their reputation of exemplary use of adaptations for students with cognitive disabilities and their willingness to participate. The surveys were then sent to the ten physical education teachers to answer along with a consent form to sign (see Appendix B).

After the surveys were returned, the data was analyzed and three physical education teachers were chosen to be interviewed and have their classrooms observed. These physical education teachers were chosen because they showed an exemplary use of adaptations and they were in three different stages of their teaching career. Interview questions were then created based off of the answers received in the surveys. Appendix item E provides the list of interview questions that were asked of the three physical education teachers.

The ten physical education teachers were then asked to rank the 16 adaptations based on most effective to least effective and then again on easiest to implement and most difficult to implement. However, only four physical education teachers participated in this portion of the study. Then fifteen general education teachers were also asked to rank the adaptations. They were asked to rank them based on most effective to least effective and most likely to use to least likely to use. Appendix F provides a copy of the ranking adaptations list sent to the physical education teachers. Appendix G provides a copy of the ranking adaptations list sent to the general education teachers.

The ten physical education teachers were then asked to review and assess the handbook based on a rubric found in Appendix D. The fifteen general education teachers were also asked to review and assess the handbook based on the same rubric.
Surveys

The first six questions of the survey provided background information on the physical education teacher (Appendix B). These questions asked if the teacher was male or female, how many years of experience they have teaching, the age range of the students they teach, the average number of students they teach, the average number of students with cognitive disabilities they teach, and if their class is an inclusion classroom. These questions were included because this background information can provide insights into why certain adaptations are used, not used, liked, disliked, etc. The seventh question of the survey had a list of adaptations and the physical education teachers were asked to check the box next to each adaptation they used in their classroom for students with cognitive disabilities. The adaptations included in this section were found to be commonly used in physical education classrooms. Questions eight through ten were open-ended questions. They asked about which adaptations from the list the physical education teacher used the most and least, which adaptations they believed to be the most beneficial for students with cognitive disabilities, and what are some difficulties that the physical education teachers face when teaching students with cognitive disabilities.

After the survey data was collected, the raw data was then analyzed. The frequency of each adaptation used was found and three categories of adaptations emerged. The most used adaptations fit into the category of direct instruction. The least used adaptations fit into the category of physical/visual. The adaptations used moderately fit into the category of operational guidelines. Then the adaptations used by male teachers versus female teachers were compared. This was also done for the number of years the physical education teachers taught, how many students they teach, how many students with cognitive disabilities they teach, the age range of their students, and if their physical education classroom is an inclusion classroom or not. The last three questions on the survey were in an open response form.
The responses to these questions were analyzed according to bracketing and content analysis. For bracketing, the responses were interpreted and common themes were identified across the survey responses. Then a term and definition were created to explain that theme of responses that emerged from the surveys. Content analysis was done by searching for common patterns and themes within the responses given in the surveys. These themes became categories with which the physical education teachers’ responses were organized within (Patton, 2002).

The responses had five emerging themes: time, support, tension/demand between students with cognitive disabilities and general education students, characteristics of the cognitive disability, and effectiveness of the adaptation. Observations were made from this data and interview questions were created from these observations.

**Interviews and Observations**

Out of the ten physical education teachers, three were selected for observation of their classes and interviews. The years of experience teaching from the ten physical education teachers was divided into three categories. The three physical education teachers chosen to be observed and interviewed were taken from each range of years of experience: 1-10 years, 11-20 years, and 21-30 years. They were then chosen based on their thoughtful responses to the open response questions on the survey (questions 8-10).

The questions used for the in-person interviews were derived from the results of the initial survey completed by ten physical education teachers. The interview questionnaire can be found in Appendix E. The first three questions focused on pre-service training, opportunities for development, and resources used to find information about teaching students with cognitive disabilities. Questions four through six inquired about the findings from the survey data indicating that teachers in their middle years of teaching (11-20 years) use fewer adaptations than teachers in the beginning of their career (1-10 years) and fewer than teachers in the end of their career (21-30 years). These questions asked if they observed a change in the amount of
adaptations they used throughout their career, hypothesize why teachers use fewer adaptations in the middle of their career, and if they believe family responsibilities have influenced the amount of adaptations they use. Question seven asked the physical education teachers why they believe that teachers use more adaptations for students’ ages 9-15 than any other age range. Question eight asks the teachers to look at the chart created on the three categories of adaptations (Appendix H) from the survey data. They were asked to give feedback on the conclusions made on this chart. The ninth question in the survey asked the teachers why they thought females are three times more likely to use adaptations in the physical/visual category than males. Questions ten through twelve asked about different physical/visual adaptations the teachers used. They inquired on whether or not the teacher used visual directions, if they could think of some universal tasks that physical/visual adaptations should address, and why they thought task cards were used the least. Question thirteen was added to the interview after the first interview and observation. In the first interview and observation, the teacher discussed how often he uses technology in his class so it was decided that this was an important factor to ask the other physical education teachers. Therefore, question thirteen asked the teachers what kind of technology they used in their classrooms.

During the observations, notes were taken on the different adaptations the teachers used and how effective the adaptations were. The physical education teachers were asked all of the questions on the interview questionnaire and notes were taken on their responses. The responses from each question were then analyzed for commonalities. The observations then were reviewed to see if these commonalities were supported. The data from the surveys, observations, and interviews were all compared for reliability. This data was then shared with an expert to validate the information and interpretations.

Based on information from the literature review, survey questions identified the implementation of common adaptations for students with cognitive disabilities and prevalent
adaptations being made. The surveys asked the physical education teachers what kinds of adaptations they are using most often with students with cognitive disabilities, why they chose the adaptation, the benefits of those adaptations, who made the adaptation, and difficulties they encounter while implementing the adaptations.

**Focused Interviews**

From the pool of surveyed teachers, focused interviews were conducted with three physical education teachers. The three teachers were chosen based on their survey responses and their accessibility. Dr. Walley and I chose three teachers who excelled at implementing adaptations for students with cognitive disabilities during physical activities. I observed these three teachers in order to validate information obtained from the surveys and interviews. During the observations, I looked for the adaptations the teacher said they made during the survey and how these adaptations appeared to benefit students with cognitive disabilities. During the post observation interviews, I asked for clarification on their responses to the survey in order to enrich the data. I also asked about things I observed during my observations.

**List of Ranked Adaptations**

After categorizing adaptations from the surveys, interviews, and observations, a list and description of the adaptations were sent to the initial ten physical education teachers (Appendix F). It was requested that they prioritize the adaptations from most to least effective and then again by how easily they are implemented. A list of adaptations were also distributed to fifteen general education teachers and they ranked the adaptations from most effective to least effective and again most likely to use to least likely to use in their classroom (Appendix G). The list of adaptations was given to general education teachers to see if any of the adaptations used in physical education can be generalized to academic classrooms. If so, these adaptations can help general education teachers include students with cognitive disabilities in academic classes.
successfully. The fifteen general education teachers were chosen because they volunteered to participate in the study.

The data from each set of rankings was organized by adaptation and the average ranking was found for each adaptation. The highest average then became ranking 16 down to the lowest average being ranked one. These new rankings were then assigned to each adaptation based on the averages. Each adaptation has four new rankings: most effective (1) to least effective (16) according to the physical education teachers, easiest to implement (1) and most difficult to implement (16) according to the physical education teachers, most effective (1) to least effective (16) according to the general education teachers, and most likely to use (1) to least likely to use (16) according to the general education teachers.

**Handbook Creation**

My goal for this project was to create a handbook that will help teachers design effective physical activities that are adapted to students with cognitive disabilities. This handbook was divided into three categories of adaptations for students with cognitive disabilities: direct instruction, operational guidelines, and physical/visual. Furthermore, I wanted to make my handbook for adaptation universal so it can be generalized to fit the academic classroom and not just the physical education setting. Adaptations made by physical education teachers aim to provide a clue into general adaptations for all teachers. This way all teachers can benefit from this handbook in order to create effective adaptations for their students. As an intervention specialist, I will be working with general education teachers on inclusion; this is an important strategy in special education. As an intervention specialist, I will be a resource to other teachers. Having a handbook that can help teachers develop effective physical activities that are adapted to students with cognitive disabilities, improves my role as a resource to teachers. In addition, this handbook on adaptations can help teachers practice differentiation within their classrooms. This
will be a resource for me to give general education teachers to help them make adaptations for
students with cognitive disabilities in their classroom.

Using the data collected, the category analysis, and the rankings from the physical
education teachers and general education teachers, a handbook of adaptations was created that
can be generalized across different environments for students with cognitive disabilities. This
handbook is provided as Appendix item EE. The handbook was broken down into the three
categories of adaptations: direct instruction, operational guidelines, and physical/visual.
Descriptions of each adaptation were included along with data gathered from this study
explaining the adaptations effectiveness, implementation, and use according to physical and
general education teachers. The handbook gave examples of the each adaptations use in physical
and general education classes. Also, generalized physical/visual adaptations were created and
were provided in the handbook so that educators can use these in their classroom for students
with cognitive disabilities. Along with samples of generalized adaptations, pictures were
included to help clarify the adaptation being discussed. The handbook had sections about using
technology with specific adaptations. Finally, there was a resource section provided for the
adaptations that teachers can use to find more information.

The handbook was sent to the fifteen general education teachers and the ten physical
education teachers to evaluate its effectiveness. The teachers were asked to evaluate the
handbook based on a rubric (Appendix D). The categories on this rubric were quality of
examples, organization, usefulness, strengths, weaknesses, and other suggestions. The teachers
were asked if the quality of examples was high, moderate, or low. Then if they responded
moderate or low they were asked to suggestions to improve this. They were also asked if the
organization of the handbook was good, fair, or poor. If they responded fair or poor then they
were asked to offer suggestions to improve it. The teachers were asked if the handbook was very
useful, moderately useful, or not very useful. If they responded moderately or not very useful
then they were asked to offer suggestions to improve the handbook. The teachers were asked to indicate any strengths or weaknesses of the handbook and offer any other suggestions they may have.
CHAPTER IV

Report of Findings

When the surveys were returned, the first set of data that was analyzed came from question seven. This question had the physical education teachers check which adaptations they use in their classroom for students with cognitive disabilities. The PE teachers were given sixteen adaptations that are commonly used in physical education classes for students with cognitive disabilities and asked if they used those adaptations in their classrooms. The totals of each adaptation used were added to get the general frequency use of each adaptation. Figure 4.1. depicts the frequency of each adaptation used by the ten PE teachers surveyed.

When the adaptations were ranked from most used to least used, it was evident that the adaptations fit into three categories (Appendix H). The top five most frequently used adaptations were one on one attention, repetition of rules/skills, modeling by PE teacher or aide/paraprofessional, peer teaching or modeling, and hand over hand. The five adaptations fit
into the category of direct instruction. The adaptations help students with cognitive disabilities accomplish a single task and they are individualized for a specific student. Also, the prep time required by the PE teacher is minimal and these adaptations can often be used spontaneously.

There were six adaptations that were used moderately by the ten physical education teachers. These adaptations were start and stop cues, extrinsic reward systems, visuals for boundaries, learning stations, shortened activity times, and written directions. These adaptations fit into the category of operational guidelines. They aid in class functioning, rules, guidelines, and boundaries. These adaptations set boundaries and guidelines for the whole class or a group. These adaptations take moderate planning time but can be used repeatedly.

The last five adaptations, task cards, picture directions, checklists, pictures schedules, and cue cards, were used the least by the ten physical education teachers surveyed. These adaptations fit into the category of physical/visual. They can be used for groups or individualized to meet specific student’s needs. These adaptations help students with cognitive

<table>
<thead>
<tr>
<th>Category</th>
<th>Task Orientation</th>
<th>Prep Time</th>
<th>Group or Individual</th>
</tr>
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<tbody>
<tr>
<td>Direct Instruction</td>
<td>Single task</td>
<td>Minimal prep time</td>
<td>Individual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One time use</td>
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<td>Spontaneous</td>
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<tr>
<td>Operational Guidelines</td>
<td>Set boundaries</td>
<td>Pre planned</td>
<td>Group</td>
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<tr>
<td></td>
<td></td>
<td>Moderate prep time</td>
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<td></td>
<td></td>
<td>Multiple uses</td>
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<td></td>
<td></td>
<td>Universal</td>
<td></td>
</tr>
<tr>
<td>Physical/Visual</td>
<td>Multiple tasks</td>
<td>Advanced planning</td>
<td>Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Most prep time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple uses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Individual</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4.2. Categories of adaptations**
disabilities complete multiple tasks. The prep time for these adaptations take the most out of any of the adaptations in any other categories. These adaptations must be prepared in advanced but they can be used multiple times. Figure 4.2. illustrates the break down of the adaptations into their different categories.

Surveys

The adaptations used were then analyzed according to question one: whether the teacher was male or female (Figure 4.3.). There were four male physical education teachers surveyed and six female physical education teachers surveyed. There were two adaptations used by all physical education teachers surveyed and that was one on one and repetition. All males surveyed also used peer modeling as an adaptation. The adaptations were broken into the three categories created from the general frequency of adaptations used: direct instruction, operational guidelines, and physical/visual. The average male and female physical education teacher used about four direct instruction adaptations and three operational guidelines adaptations. However, when using

![Male Vs. Female](image)

**Figure 4.3. Gender differences related to adaptations**
physical/visual adaptations, female physical education teachers are almost three times more likely to use these adaptations. This information is depicted in Figure 4.3.

Question two asked the physical education teachers how many years they have been teaching (Figure 4.4). The average number of years taught by physical education teachers surveyed was 15.6 years. The adaptations data was then analyzed based on how many years the educator has been teaching. The years of experience were split into three different groups: 1-10 years, 11-20 years, and 21-30 years. The adaptations used by all teachers surveyed with 1-10 years of experience are cue cards, hand over hand, one on one, and repetition. The teachers with 11-20 years of experience all used peer teaching or modeling, one on one, and repetition. The adaptations used by all physical education teachers with 21-30 years of experience are learning stations, modeling, peer modeling or teaching, one on one, repetition, and visual boundaries. The educators with 1-10 years of experience and 21-30 years of experience used about three adaptations more than educators with 11-20 years of experience.
The survey asked the physical education teachers the age range of the students they taught in question three (Figure 4.5.). The age range of students taught was split into three groups: ages 3-9, 9-15, and 16-18. Physical education teachers used about six more adaptations when teaching students ages 9-15.

**Figure 4.5. Student age ranges**

**Figure 4.6. Average number of students taught**
The physical education teachers surveyed were asked the average number of students they teach a year (Figure 4.6.). The overall average was about 400 students. The number of students taught a year ranged from 8 to 800. The number of students taught a year was split into three groups in order to analyze the adaptations used: 8-300 students, 350-500 students, and 550-800 students. The adaptations used were analyzed according to three categories: direct instruction, operational guidelines, and physical/visual. When it came to direct instruction adaptations, physical education teachers who taught about 8-300 students used about one less adaptation than teachers who taught 350-500 students and 550-800 students. Physical education teachers who taught about 350-500 students used about one more operational guidelines adaptation than teachers who taught 8-300 students and 550-800 students. Physical education teachers who taught about 550-800 students a year used about one more physical/visual adaptation than teachers of 8-300 students and 350-500 students. However, this difference in one adaptation use for all three categories is not significant. This may be because the sample size surveyed is small.

Question five on the survey asked the physical education teachers the average number of students with cognitive disabilities they teach a year (Figure 4.7.). The total average was about

![Number of Students with a Cognitive Disability](image)

*Figure 4.7. Frequency of adaptations being used with students with a cognitive disability*
26 students with cognitive disabilities. The number of students with a cognitive disability these teachers typically teach a year ranges from 4 to 60 students. Three different groups were made from this range: 1-20 students, 20-30 students, and 30-60 students. Teachers who taught about 1-20 students with cognitive disabilities use about eight adaptations compared to teachers who teach about 30-60 students with cognitive disabilities use about ten adaptations.

The ten physical education teachers were asked in question six if their class was an inclusion classroom or not (Figure 4.8.). There were eight teachers who taught inclusion classes and two who did not. The adaptations used by the teachers who taught an inclusion class and who did not teach an inclusion class were broken down into the three categories of adaptations: direct instruction, operational guidelines, and physical/visual. In all three categories, direct instruction, operational guidelines, and physical/visual, the inclusion physical education teachers used about one more adaptation than the physical education teachers who did not teach inclusion.

![Figure 4.8. Inclusion class](image-url)
Questions eight through ten on the survey were open-ended questions. The answers to these questions were color coded on the surveys according to five themes that emerged: time, support, tension/demand between students with cognitive disabilities and general education students, characteristics of the cognitive disability, and the effectiveness of the adaptation (Figure 4.9). These themes illustrate why or why not the physical education teachers used specific adaptations. Figure 4.8. outlines the five themes and their descriptions.

<table>
<thead>
<tr>
<th>Emerging Theme</th>
<th>Time</th>
<th>Support</th>
<th>Tension/Demand</th>
<th>Characteristics</th>
<th>Effectiveness</th>
</tr>
</thead>
</table>
| Description    | • Individual students  
                 • Preparation time  
                 • Class time        | • Peers  
                 • Paraprofessionals  
                 • Aides            | • General education students  
                 • Students with cognitive disabilities  
                 • Characteristics of the cognitive disability that affects student’s learning | • Usefulness  
                 • Effectiveness | |

Figure 4.9. Emerging themes

The theme of time consists of the physical education teachers having a lack of time to spend individually with students, lack of preparation time, lack of class time, etc. The theme of support consists of peer support, paraprofessionals/aides, etc. The tension/demands between students with cognitive disabilities and general education students consists of physical education teachers being unable to equally serve all students. The theme concerning the characteristics of the cognitive disability consists of different aspects that pertain to the disability and that affecting the physical education teachers’ ability to teach the students. The effectiveness of the adaptations category pertains to how useful and effective the adaptation is according to the physical education teachers surveyed.

When it came to time, physical education teachers explained that there was “never enough time.” When it came to creating individualized instruction, one teacher commented that “only seeing them [the student] once a week for 40 minutes, it is hard to figure out what works best for each student.” Physical education teachers seem to have difficulty being able to figure
out the best way to teach their students because they do not get enough contact with them. One solution must be to find out from the student’s academic teacher what works best for the student; however, one teacher explained the problem of being a physical education teacher and trying to do this: “everyone is just constantly maxed out with time they have available so I spend a good amount of lunch/planning time each week trying to catch up with teacher[s] so we are on the same page. This can be difficult because my ‘free time’ [planning time] during the day is often during academic times so it sometimes turns into email tag or I’m interrupting class.” One teacher surveyed explained that they do not use one on one time with students often because “my classes tend to be very large, therefore I am not afforded the luxury of a lot of one on one time with students.” However, another teacher said that “one on one attention, shorten activity time, and hand over hand … are most frequently used because in all honesty they do not require an extensive amount of planning or changing the classroom routine for the other students.” Some adaptations, like one on one attention revealed conflicting views on whether it was used more or less because of time. One teacher said they used checklists because they are “precise and allows for more independence,” which takes time from the teacher working with other students. Two physical education teachers said that they used picture schedules the least “because of the time it takes to make the picture schedules.” For this reason, a universal version of a picture schedule was created for a physical education class (Appendix Q). By creating a universal picture schedule, more physical education teachers can use them because time is no longer a factor.

When it came to the theme of support, the physical education teachers said that they desired one on one paraprofessionals for their students with cognitive disabilities. Some of the physical education teachers said they received support from a paraprofessional and some did not. One teacher said that paraprofessional support “is very helpful but not cost effective in our district.” Many physical education teachers say that “there is not enough adult support in my room” because “[students with cognitive disabilities] tend to be very dependent on teacher
direction.” Some teachers did not formally establish peer teaching and modeling in their classes, but it happened naturally: “I do have some students who have formed relationships with peers who are willing to assist them, but this is not a formal initiate it is something that just happened organically.” When commenting on peer modeling and teaching, the teachers surveyed seemed to have nothing but good things to say: “I have seen how amazing it can be for both parties when peers get involved.” Another teacher observed, “how beneficial it can be for both kids and how loving the GPE students can be with our APE kids.” One teacher commented on how peers seem to be more accepting of students with intensive disabilities and less accepting of students with mild disabilities: “they cheer, encourage, and befriend the most challenged. The not so challenged, they tend to not have as much tolerance for, so this must be monitored very closely.”

Another theme that emerged from the physical education teacher’s responses was that of tension and demand between students with cognitive disabilities and general education students. Tension and demand is the need and attention of many students with cognitive disabilities by the physical education teacher versus the need and attention of general education students simultaneously. Many teachers explained how in inclusion classes it can be difficult for the students with cognitive disabilities to mesh and fit in with the general education students. One teacher said that makes learning stations difficult because “other students don’t always understand those students [with cognitive disabilities].” Some adaptations that work well to counter the theme of tension/demand between the groups of students are stations, checklists, and visual cues/boundaries. As one teacher explained, “because they allow those students to be involved at their current level and not feel like they stuck out in class.” A few teachers said that the adaptation of repeating rules and skills is beneficial because “all students, whether or not they are cognitively delayed, benefit from repetition” and “no singling out” students. Some of the difficulties these teachers encounter with the tension and demand between their students stems
from “finding the time to spend with the student when you have 20-30 other students at the same time.” Another teacher commented that “It is a real challenge to deliver instruction to our CD population while keeping class moving and active for our typically developing students.”

Teachers mentioned that a challenge of working with students with cognitive disabilities is taking time from other students: “the give and take of providing more time/attention to individual student when there is a larger class…many times students get overlooked when too much individual one on one attention is provided.” The adaptations that provide independence to students with cognitive disabilities, such as checklists, can help these physical education teachers balance their attention between their students with cognitive disabilities and their general education students.

Difficulties arise for many physical education teachers when teaching students with cognitive disabilities due to the nature of the disability. One teacher stated “their cognitive disability a lot of times affects their motor function which makes activities frustrating.” Another concern that arises is “fear of failure” because “too many times they [students with cognitive disabilities] have been unsuccessful and then they have more anxiety about failure.” Teachers said that the least effective adaptations when trying to counter issues that arise because of the characteristic of the disability are written directions. This is because most students with cognitive disabilities are “not high fluency readers.” Multiple teachers said that a beneficial adaptation was one on one attention because “every student with a cognitive disability is different and when I am able to give them one on one time I am able to modify or explain activities in a way that is appropriate for that individual.”

One teacher mentioned task cards as beneficial even though they were the least used according to the survey. The teacher said task cards are “very helpful because most of my students need concrete instructions for how to complete tasks.” In response to comments such as
this, I created a universal version of task cards so physical education teachers might try to use this adaptation more because it appears to be beneficial to some students (Appendix R).

Extrinsic rewards were said to be a helpful adaptation, but the teacher warned that “you must have the right rewards in place and they need to be a reward that a student feels they can achieve” or it will not be effective. An operational guidelines adaptation that was said to be beneficial was using cones “because visually kids can see exactly where the boundaries are instead of having to process.”

The last theme that emerged from the physical education teacher’s responses concerned the effectiveness of different adaptations. The three most beneficial adaptations mentioned were modeling by the teacher, repetition of rules and skills, and one on one attention. Repetition is beneficial according to one teacher “since PE is so ‘on stage’ repeating and hav[ing] the students participate later in the game/skill allows [the students] to hear what is being said to [them] … and see what the students are doing numerous times before their turn.” Another teacher stated that “repetition of rules and skills [insures] understanding [and] helps the teacher to know if they are understanding the concepts.” In a similar fashion, modeling is a beneficial adaptation for students with a cognitive disability because it “allows students to see exactly what they need to do and hear the directions in a slower more controlled way than typical students.” Modeling “reinforces what’s being done if a student gets off task.” One on one attention is beneficial because students can “focus more on you and what you’d like them to accomplish in the skill that’s being taught.” Another adaptation that was mentioned to be beneficial was pictures, hand over hand, and checklists. Checklists provide independence and pictures provide a concrete, visual example of what the student should be doing. Hand over hand is beneficial because it “allows the student to feel the motion.”
Interviews

Question one of the interview asked physical education teachers about their pre-service training related to adaptive physical education and students with cognitive disabilities: Level of pre-service training on adaptive physical education and students with cognitive disabilities. All of the physical education teachers had some sort of adaptive physical education endorsement or certification. Two of the three physical education teachers who were interviewed and observed said they were licensed in adapted physical education. This emphasizes the importance to promote adaptive physical education and using adaptations in physical education because so few states have set terms for it. Question two asks what opportunities for professional

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Years of Experience</th>
<th>Gender</th>
<th>Cognitive Disabilities/ Total Students</th>
<th>Observed Adaptations Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>Female</td>
<td>50/800</td>
<td>• One on one</td>
</tr>
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<td></td>
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<td>• Start and stop cues</td>
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<td>• Repetition</td>
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<td></td>
<td></td>
<td>• Microphones</td>
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<td></td>
<td></td>
<td>• Written directions</td>
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<td></td>
<td></td>
<td>• Task cards</td>
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<td>• Extrinsic reward system</td>
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<td>• Checklists</td>
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<td></td>
<td>• Modeling</td>
</tr>
<tr>
<td>B</td>
<td>12</td>
<td>Male</td>
<td>6/360</td>
<td>• One on one</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Start and stop cues</td>
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<td>• Modeling</td>
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<td>• Paraprofessional</td>
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<td>• Peer Modeling/Teaching</td>
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<td></td>
<td>• Equipment Modifications</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>Female</td>
<td>5-10/450</td>
<td>• One on one</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>• Start and stop cues</td>
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<td>• Equipment Modifications</td>
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</tbody>
</table>

Figure 4.10. Physical education teachers interviewed and observed
development the physical education teachers have: Opportunities for professional development for students with cognitive disabilities and physical education. Teacher A (elem.) and B (mid.) responded that they attend conferences. Teacher C (elem.) said that she does attend outside professional development because her school provides it on teacher in service days. Teacher A (elem.) explained how she recently attended a national conference and spoke at it about adaptive physical education. Question three asked the physical education teachers where they get their information regarding the nature and need of their students with cognitive disabilities: Where do you get your information regarding the nature/needs of students with cognitive disabilities and appropriate adaptations? Teachers B (mid.) and C (elem.) mentioned that they read and reference the IEP concerning adaptations and the needs of their students. Other professionals were mentioned such as physical therapists, occupational therapists, and behavior specialists. Teacher B (mid.) mentioned how he communicates with the paraprofessional and parents of the students.

In the interviews, question four asked the physical education teachers to reflect on their career and determine if the amount of adaptations they have used has changed. How have you changed from previous years in terms of amount of adaptations you use? All three of the physical education teachers said that they use more now than in previous years. However, all three of the interviewees are from different stages in their career. Teacher C (elem.) stated that during the first ten years of her career she did not have an inclusion class so using adaptations was unnecessary. Teacher B (mid.) also said that he currently has more students with cognitive disabilities in his classes than in previous years. Teacher A (elem.) commented about how the needs of students have become higher than past years. She is also designing movement activities that can be incorporated into the academic environment. It could be hypothesized that the education field has obtained more knowledge on the needs of students with cognitive disabilities and this newer teacher has the latest education concerning meeting those needs.
The fifth question on the interview discussed how there was an observed change in the number of adaptations teachers used throughout their careers. Teachers at the beginning and end of their career used more adaptations than in the middle of their career. I observed a change in use: high beginning and end, lower middle of career. The physical education teachers were asked to stipulate why this might be the case: Why do you think there is a dip? Teachers A (elem.) and B (mid.) mentioned how newer teachers have new ideas and have learned the newest strategies to meeting students’ needs. Teacher C (elem.) was surprised to find this dip and did not believe she had a dip in her career. She said that teachers are bound by the law to make adaptations that are in the student’s IEP. Teacher B (mid.) was surprised to hear that older teachers use more adaptations than mid career teachers.

Question six in the interview asked the teachers how much they believed their family responsibilities influenced the amount and types of adaptations they used throughout their careers: How much do/did family responsibilities impact the amount and types of adaptations you use/used? Has this changed during your career? Teacher A (elem.) did not have much to comment on this because she did not have any family responsibilities at this point and has not yet experienced this. However, Teacher B (mid.) and C (elem.) said their families did influence their career. Teacher B (mid.) said that currently he has three young children so he attends less professional development, but makes up for this by communicating more with the student’s current and past teachers. Teacher C (elem.) said that when her children were young she did not coach or commit to things outside of the school day. However, she did make it clear that her family responsibilities did not affect her teaching during school.

The seventh question in the interview asked for the teachers to hypothesize why teachers use more adaptations for students ages 9-15, according to the survey data: More adaptations are used for students’ ages 9-15 than any other age range. Why do you believe this is the case? All three teachers had different reasons as to why teachers use more adaptations for this age range.
Teacher A (elem.) works in an elementary school and she believes that because those students are at an older age, they can use more adaptations and understand them. She also said that teachers lack the knowledge to support the younger ages so by the time they reach this age they need more adaptations. Teacher B (mid.) works in a middle school and he said that this increase in adaptations for ages 9-15 was due to younger students not being identified. This is contradictory to research because early identification programs and policies are being promoted more now than in previous years (Minnesota Department of Human Services, 2014). He goes on to say that students, who are identified, have early identification goals so teachers do not know what works best for those students yet. By the time they reach this age range, teachers have figured out what works best for those individuals. High school teachers use fewer adaptations according to him because the students are on a similar level so there is less need to differentiate and there are more class options to meet students’ needs. This also contradicts research that says the span widens as students progress cognitively (Slavin, 2011). According to teacher B (mid.), middle school students (in the age range where more adaptations are used) have a wider spectrum of abilities so more adaptations are required. Teacher C (elem.) teaches in an elementary school. She believes that students in the 9-15 age range get less occupation and physical therapy time than younger students so this makes a difference in their need for adaptations in physical education.

In the interview, question eight asked the physical education teachers for their feedback on the conclusions made in the three categories of adaptations (direct instruction, operational guidelines, and physical/visual) chart from the survey, found in Appendix H: Chart of three categories. Teacher B (mid.) and C (elem.) agreed that the physical/visual adaptations require more planning time. Teacher A (elem.) teacher found herself to be opposite of the survey data because she uses the physical/visual adaptations the most when compared to the other teachers who use it the least. Teacher B (mid.) commented that some teachers do not use the
physical/visual adaptations often because it takes time to create them and they are not always effective so they think they have wasted their time. Teacher C (elem.) thought the physical/visual adaptations were too difficult for younger students, due to the words and pictures that need to be processed. She believes these adaptations are more appropriate for upper level students with more cognitive ability. Teacher B (mid.) commented that the physical/visual adaptations do not perform as well as direct instruction adaptations.

The physical education teachers were then shown different physical/visual adaptations and asked if these would be effective in their classes. When shown the picture schedule, found in Appendix Q, Teacher A (elem.) said she uses them if a student needs it. Teacher B (mid.) uses a written schedule on the whiteboard in his gym. He writes what they are doing for the day on the board and for students who are unable to read it, he will read it to them. Teacher C (elem.) said that the pictures on the picture schedule are too difficult to process for her elementary students so she would not use it. When teacher A (elem.) was asked her opinion on using the First Then (Appendix S) adaptation she said she uses them in combination with a token board (Appendix T). She primarily uses First Then adaptations for her preschool and first grade classes. This contradicts Teacher C’s (elem.) feedback who also teaches in an elementary school. She said that the words “First Then” would be too difficult for her students to process so she would use numbers instead. Teacher B (mid.) does not use the physical First Then adaptation but verbally says to students first do this then you can do that. He often accompanies his verbals by pointing to the different objects needed to complete the tasks. Teacher A (elem.) said that she uses picture directions (Appendix U) at stations. Teacher B (mid.) responded that he does not physically use picture directions but instead uses videos to show students steps in a skill or how to do something. The picture directions were thought to be too difficult to understand by teacher C (elem.) so she does not use them. Teacher C (elem.) also said that she would only use the Complete the Task physical adaptation (Appendix V) for third graders and up
because of its high cognitive level. She suggested putting the tasks on cards (Appendix R) on a ring that the student could flip through. Teacher B (mid.) uses the Complete the Task adaptation in the form of fitness logs where the students log their completion of different fitness tests.

Question nine asked the physical education teachers why they believe that female teachers are three times more likely to use physical/visual adaptations compared to male teachers, according to the survey data: The data we collected showed the difference between male and females in the physical/visual category that females were three times more likely to use adaptations in this category…why do you think this is? Teacher A (elem.) commented that males keep things more straightforward, whereas, females are more detail oriented. Teacher B (mid.) mentioned that sadly some men tend to focus more on coaching and teaching comes second. A more biological reasoning came from Teacher C (elem.) who said that women understand the amount of nurturing that is needed for cognitively underdeveloped students because they have nurtured their own children through the developmental stages. She continued to say that the father figure is typically working while the mother is working with the children on developing at home. This gives female teachers a different perspective when it comes to providing students with adaptations to be successful.

Question ten was answered by showing the teachers the picture directions: Do/would you use visual directions for physical education? Teacher A (elem.) uses picture directions, where Teacher B (mid.) uses them in the form of video. Teacher C (elem.) does not use them because she believes they are above the cognitive level of her students.

When asked question eleven, what universal tasks would physical education teachers benefit from using physical/visual adaptations, each teacher skated over the question. None of the teachers gave a direct answer of tasks that would be beneficial. This could be due to the fact
that teacher B (mid.) and C (elem.) do not directly use the physical/visual adaptations listed on the chart. Also, the interviewees may not have understood the question.

Question twelve asked the interviewees why they thought that task cards are used the least. Teacher A (elem.) commented that other teachers do not use them because of the prep time it takes to make them. This teacher explained how she is a diverse learning specialist in her school. Her job is to build strategies and adaptations for teachers who have never taught students with disabilities before and now have these students in their classes. She sees that a lot of teachers do not take the time to make them. She understands that these adaptations are helpful and, thus, helps other teachers create them. Teacher B (mid.) said that he formerly used task cards but does not anymore because of the technological resources he has. He uses videos instead of task cards.

Question thirteen was added to the list after the first interview: What kind of technology do you use in your classroom? In the first interview, teacher B (mid.) talked often about the technology he uses to make adaptations such as a projector and iPads rather than physical/visual adaptations. It was decided to then ask teachers A (elem.) and C (elem.) if they used technology in their classes. Teacher A (elem.) and B (elem.) use iPads to video students to show them how they are completing a skill and point out what they need to change to make it better. They also record students completing skills to use as a model for other students to watch. These two teachers also use projectors to show videos. Teacher A (elem.) often plays music during her classes because the students are more focused when the music is playing. The music drowns out noises made by the gym’s acoustics, therefore, accommodating students’ sensory needs. Teacher C (elem.) does not use technology because she said she does not have time for it.

Adaptations Used in the Observations

Teacher A (elem.) and B (mid.) used microphones connected to a loud speaker in their gym classes. The acoustics in the gym are poor so using the microphone helps all students to
hear the instructions given by the physical education teacher. This also helps students with auditory sensory problems because the microphone helps the teachers voice stand out against other noises.

All three of the physical education teachers observed used a whistle as a stop and start cue. This lines up with their response on the survey saying that they use stop and start cues. Teacher A (elem.) even has a poster of what different whistle commands stand for. One whistle means the students should stop, look, and listen. Two whistles means sit and put the equipment they are using on the ground. Three whistles means clean up and find your spot in the gym.

Teachers A (elem.) and B (mid.) were observed using whiteboards in their gym, although in very different ways. Teacher B (mid.) only used his white board as a written schedule. He wrote what the students would be doing in class that day. Teacher A (elem.) had two large white boards and she had different task cards depicting exercises on the board. She said the students could choose different exercises off of the board. This parallels her survey where she said she used task cards. She also writes the goals and “I Can” statements on the whiteboards. An example of one of her “I Can” statements is: I can throw a ball using the step, point, switch method. This teacher also writes the different vocabulary the students are learning on the whiteboard for their reference.

On the survey, teachers B (mid.) and C (elem.) said they used extrinsic reward systems. However, this was not observed in their classes or mentioned during the interviews. Teacher A (elem.) had an extrinsic reward system set up in her class but did not indicate she used this adaptation on her survey. The students earned medals by meeting the goals on the whiteboard. There were three different medals (gold, silver, and bronze) they could earn and the highest medal meant they completed the skill perfectly.

Teacher A (elem.) indicated on her survey that she used checklists in her classroom. The students were given weekly checklists that they would complete. They would check off different
skills they completed throughout the week and this helped them reach the goal on the whiteboard.

All three teachers would provide detailed modeling for their students with cognitive disabilities. However, teacher B (mid.) indicated that he did not personally use this in his classroom; he had an aide who would model the activity for a student with a cognitive disability. The aide would, for example, model the steps to shoot a basketball or how to play a game. Teachers B (mid.) and C (elem.) said on their survey that they utilized peer modeling and this was seen in their observations. Teacher C (elem.) would pair a student without a disability with the student with a cognitive disability. This student would have the student with a cognitive disability watch him perform the skill and then guide her through completing the skill herself. The peer would often provide reminders and demonstrate the skill. Teacher B (mid.) also had a higher functioning student with a cognitive disability model for the lower functioning student with a cognitive disability. These two students had a majority of their classes together so they worked well together.

Teacher B (mid.) and C (elem.) made equipment adaptations for their students. For example, both teachers were teaching basketball skills. Teacher B (mid.) lowered the hoop for the student with a cognitive disability, and teacher C (elem.) had the student use a smaller basketball. These equipment modifications gave the students a greater opportunity for success.

Teachers A (elem.) and C (elem.) indicated that they used hand over hand adaptations in their survey. However, during the observations only teacher C (elem.) was seen using this adaptation. This teacher often placed the student’s hands in the correct position to shoot a basketball. She would move the student’s hands through the motion of shooting a basketball. This would familiarize her muscles with the position and movement necessary to successfully shoot a basketball.
When observing the three classrooms, the physical education teachers and students gave a lot of positive reinforcement to the students with cognitive disabilities. Peers would often cheer on these students, clap for them, and give high fives. Teachers gave the students a lot of encouragement and congratulated them for their effort. This positive reinforcement from not only the teacher, but also the student’s peers, reinforces their confidence and self-esteem even if they did not perform the skill accurately.

**Ranked adaptations list**

The ranking adaptation lists asked the physical education teachers to rank each adaptation according to one being the most effective and sixteen being the least effective. Only four of the ten physical education teachers participated in this aspect of the study. Figure 4.11 breaks down the adaptations from the physical education teachers into the three categories: direct instruction, operational guidelines, and physical/visual. The raw data is then listed about which adaptation is the most effective to the least effective. The averages of each adaptation’s rankings were found. The highest average became ranking 16 (least effective) down to the lowest average, which became ranking 1 (most effective). For adaptations that had equivalent averages, the adaptation that had more rankings over nine was assigned the larger number. These were now the new rankings of the adaptations. The physical education teachers said that the most effective adaptation is teacher modeling. The second most effective adaptation is picture directions, followed by repetition. The least effective adaptation is written directions. Four out of the five direct instruction adaptations are in the top five most effective adaptations according to physical education teachers. Four out of the six adaptations in the operational guidelines category are in the last five rankings meaning they are not very effective.

<table>
<thead>
<tr>
<th>Physical Education Teachers: Most Effective (1) to Least Effective (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Instruction</strong></td>
</tr>
<tr>
<td>Teacher modeling</td>
</tr>
<tr>
<td>Repetition</td>
</tr>
</tbody>
</table>
Peer modeling/teaching | 5,3,12,3 | 5.75 | 4
One on one | 2,1,10,10 | 5.75 | 5
Hand over hand | 4,10,11,11 | 9 | 10

**Operational Guidelines**

| Learning stations | 16,6,4,6 | 8 | 7 |
| Shortened activity times | 9,5,8,14 | 9 | 9 |
| Visual boundaries | 7,16,9,12 | 11 | 13 |
| Extrinsic rewards | 11,14,14,8 | 11.75 | 14 |
| Start and stop cues | 10,13,13,13 | 12.25 | 15 |
| Written directions | 14,9,16,16 | 13.75 | 16 |

**Physical/Visual**

| Picture directions | 6,7,3,5 | 5.25 | 2 |
| Picture schedules | 8,11,1,9 | 7.25 | 6 |
| Checklists | 12,12,7,2 | 8.25 | 8 |
| Task cards | 13,15,2,7 | 9.25 | 11 |
| Cue cards | 15,8,5,15 | 10.75 | 12 |

**Figure 4.11. Physical education teachers’ adaptation rankings according to effectiveness**

The physical education teachers were then asked to rank the 16 adaptations with one being the easiest to implement in their class and 16 being the most difficult to implement. Figure 4.12. breaks down the adaptations according to the three categories and shows the raw data, the averages, and the new rank assigned to the adaptation based on the averages. The easiest adaptation to implement according to physical education teachers is teacher modeling. Shortened activity times and picture directions follow this adaptation. The most difficult adaptation to implement according to physical education teachers is task cards.

<table>
<thead>
<tr>
<th>Physical Education Teachers: Easiest to Implement (1) to Most Difficult to Implement (16)</th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Instruction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher modeling</td>
<td>3,1,10,4</td>
<td>4.5</td>
<td>1</td>
</tr>
<tr>
<td>Peer modeling/teaching</td>
<td>2,11,12,3</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Hand over hand</td>
<td>10,3,11,9</td>
<td>8.25</td>
<td>7</td>
</tr>
<tr>
<td>Repetition</td>
<td>4,5,14,12</td>
<td>8.75</td>
<td>8</td>
</tr>
<tr>
<td>One on one</td>
<td>9,2,16,16</td>
<td>10.75</td>
<td>15</td>
</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortened activity times</td>
<td>5,6,8,1</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Start and stop cues</td>
<td>1,7,9,13</td>
<td>7.5</td>
<td>5</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>12,4,13,2</td>
<td>7.75</td>
<td>6</td>
</tr>
<tr>
<td>Learning stations</td>
<td>7,12,3,14</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Written directions</td>
<td>8,9,15,6</td>
<td>9.5</td>
<td>12</td>
</tr>
</tbody>
</table>
Fifteen general education teachers were asked to rank the sixteen adaptations according to one being the most effective and sixteen being the least effective. Figure 4.13. breaks down the adaptations into the three categories. It also presents the raw data, averages, and the new rank for the adaptation based on the averages. The most effective adaptation for students with cognitive disabilities according to general education teachers is one on one attention. The second most effective adaptation according to general education teachers is picture directions, followed by repetition. The least effective adaptation according to general education teachers is extrinsic rewards. Four out of the five adaptations in the direct instruction category are ranked in the top five most effective adaptations. Four out of the six adaptations in the operational guidelines category are ranked in the five least effective adaptations.

<table>
<thead>
<tr>
<th></th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Instruction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One on one</td>
<td>4,11,2,13,5,1,5,1,5,2,3,1,13,4</td>
<td>4.733</td>
<td>1</td>
</tr>
<tr>
<td>Repetition</td>
<td>1,3,3,5,1,4,1,14,7,7,4,5,7,14</td>
<td>5.429</td>
<td>3</td>
</tr>
<tr>
<td>Teacher modeling</td>
<td>3,12,1,2,4,3,9,13,4,12,3,2,2,5,12</td>
<td>5.8</td>
<td>4</td>
</tr>
<tr>
<td>Peer modeling/teaching</td>
<td>5,5,6,6,3,2,11,12,11,6,1,7,4,6,3</td>
<td>5.867</td>
<td>5</td>
</tr>
<tr>
<td>Hand over hand</td>
<td>12,8,5,14,15,12,10,6,10,14,12,14,16</td>
<td>11.385</td>
<td>15</td>
</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start and stop cues</td>
<td>8,10,10,3,10,9,14,8,5,9,8,10,11</td>
<td>8.846</td>
<td>9</td>
</tr>
<tr>
<td>Learning stations</td>
<td>10,2,15,9,13,15,12,10,12,3,1,6,11,13</td>
<td>9.429</td>
<td>10</td>
</tr>
<tr>
<td>Shortened activity times</td>
<td>14,16,8,12,2,10,8,15,14,11,4,15,2,8</td>
<td>9.929</td>
<td>12</td>
</tr>
<tr>
<td>Written directions</td>
<td>2,4,16,10,6,16,16,16,16,16,3,15,1</td>
<td>10.538</td>
<td>13</td>
</tr>
<tr>
<td>Visual boundaries</td>
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<td>10.615</td>
<td>14</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>13,7,7,16,9,13,15,11,15,8,8,14,16,10</td>
<td>11.571</td>
<td>16</td>
</tr>
<tr>
<td><strong>Physical/Visual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture directions</td>
<td>6,6,11,1,12,5,4,2,3,1,7,3,7</td>
<td>5.231</td>
<td>2</td>
</tr>
<tr>
<td>Picture schedules</td>
<td>16,1,12,11,16,7,7,3,2,4,11,1,5</td>
<td>7.385</td>
<td>6</td>
</tr>
</tbody>
</table>
The physical education teachers ranked teacher modeling as the most effective adaptation, however, general education teachers ranked this adaptation as number four. The physical education teachers and general education teachers both ranked picture directions as the second most effective adaptation. Both groups of teachers also ranked repetition as the third most effective adaptation. This makes picture directions and repetition generalizable across environments. The physical education teachers ranked written directions as the least effective and then general education ranked this adaptation as the fourth least effective adaptation. The general education teachers ranked extrinsic rewards as the least effective adaptations and the physical education teachers ranked this adaptation as the third least effective.

**General Education Teachers: Most Likely to Use (1) to Least Likely to Use (16)**

<table>
<thead>
<tr>
<th>Adaptation Type</th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition</td>
<td>1,6,3,7,1,4,1,4,9,3,2,4,7,10</td>
<td>4.429</td>
<td>1</td>
</tr>
<tr>
<td>Teacher modeling</td>
<td>3,3,1,3,5,3,15,2,3,8,1,2,5,8</td>
<td>4.429</td>
<td>2</td>
</tr>
<tr>
<td>Peer modeling/teaching</td>
<td>5,7,6,1,4,2,9,1,11,9,4,10,6,6</td>
<td>5.786</td>
<td>3</td>
</tr>
<tr>
<td>One on one</td>
<td>4,12,16,15,7,1,3,5,6,10,3,1,13,5</td>
<td>7.214</td>
<td>6</td>
</tr>
<tr>
<td>Hand over hand</td>
<td>12,11,7,10,13,8,16,13,10,14,14,16</td>
<td>12.154</td>
<td>16</td>
</tr>
<tr>
<td>Start and stop cues</td>
<td>8,1,9,2,10,6,12,15,4,4,7,10,13</td>
<td>7.769</td>
<td>7</td>
</tr>
<tr>
<td>Written directions</td>
<td>2,8,8,4,8,10,10,6,16,16,3,15,1</td>
<td>8.231</td>
<td>8</td>
</tr>
<tr>
<td>Shortened activity times</td>
<td>14,15,2,9,2,12,2,16,14,2,16,2,11</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Visual boundaries</td>
<td>7,16,10,16,3,14,13,14,7,1,13,9,14</td>
<td>10.538</td>
<td>13</td>
</tr>
<tr>
<td>Learning stations</td>
<td>10,10,15,12,11,15,4,12,13,6,8,11,15</td>
<td>10.923</td>
<td>14</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>13,14,5,13,12,16,14,3,15,13,6,16,9</td>
<td>11.462</td>
<td>15</td>
</tr>
<tr>
<td>Physical/Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture directions</td>
<td>6,2,11,5,9,9,11,7,2,7,9,3,7</td>
<td>6.769</td>
<td>4</td>
</tr>
<tr>
<td>Checklists</td>
<td>9,13,4,6,6,5,6,8,5,11,5,12,3</td>
<td>7.154</td>
<td>5</td>
</tr>
<tr>
<td>Picture schedules</td>
<td>16,9,13,14,14,11,7,10,1,5,15,1,4</td>
<td>9.231</td>
<td>10</td>
</tr>
<tr>
<td>Cue cards</td>
<td>11,4,12,11,15,7,5,11,12,15,11,4,2</td>
<td>9.231</td>
<td>11</td>
</tr>
<tr>
<td>Task cards</td>
<td>15,5,14,8,11,13,8,9,8,12,12,8,12</td>
<td>10.385</td>
<td>12</td>
</tr>
</tbody>
</table>

**Figure 4.13. General education teachers’ ranking of adaptations based on effectiveness**

**Figure 4.14. General education teachers’ adaptations rankings according to most likely to use**
The fifteen general education teachers also ranked the adaptations according to the most likely they would use in their classroom (1) to the least likely (16). Figure 4.14 breaks down the rankings of the adaptations into the three categories. Then it shows the raw data, averages, and new rankings for the adaptations based on the averages. The general education teachers said that repetition was the adaptation that they would most likely use. The second most likely used adaptation was teacher modeling followed by peer modeling/teaching. The adaptation that the general education teachers were least likely to use is hand over hand. However, the data showing that general education teachers are least likely to use the hand over hand adaptation may be due to general education teachers teaching cognitive skills more than physical skills. The hand over hand adaptation aids students with skills that are more physical.

**Handbook**

The handbook was sent to the ten physical education teachers originally surveyed and the fifteen general education teachers who completed the adaptation rank list. Two of the twenty-five teachers responded by filling out portions of the rubric used to assess the handbook. Both teachers ranked the quality of examples in the handbook as high. The two teachers ranked the organization of the handbook as good. Only one teacher evaluated the handbook’s usefulness and said that it was moderately useful. Their suggestion was “I think a table that includes the level of ease of implementation of the adaptations for both regular and physical education teachers would have been an easier text structure to use to complement the written portion and to see the overall effectiveness of each adaptation at a glance.” This suggestion was used and therefore, tables depicting the effectiveness of adaptations for physical and general education teachers, ease of implementation for physical education teachers, and the adaptations most likely to use for general education teachers were included in the handbook. These changes will hopefully make the handbook very useful to all teachers.
Both teachers commented on similar strengths of the handbook. One teacher said, “I love the picture images to help both the teacher and student understand what is being taught. The thoroughness of the descriptions are very helpful.” The second teacher said, “I liked the pictures to accompany the adaptations.” This strength demonstrates that the effectiveness and usefulness has been achieved in the handbook by including the pictures and descriptions. The only weakness was to make it more useful as mentioned above and the changes will hopefully address this weakness. The teachers offered no other suggestions.
CHAPTER V

Insights

According to this research, female physical education teachers are almost three times more likely to use physical/visual adaptations compared to male physical education teachers. One rationale that was proposed is male teachers spend less time focused on teaching and more time focused on coaching. Teacher B (mid.) agreed by saying that male physical education teachers tend to focus more on coaching and teaching comes second. This is backed up by research done by Lortie (1976) who documented this factor in his highly respected study on the lives of teachers. The physical/visual adaptations take more time to create and because it is less likely that male teachers are devoting their time to teaching, it is more likely that they will not use these adaptations. During the observations, teacher A (elem.), who is female, was the only teacher seen using extensive amounts of physical/visual adaptations. She used checklists and her whiteboards with task cards, written schedule, and written directions on it.

According to the data from the surveys, physical education teachers in years 11-20 of teaching were seen to use fewer adaptations than teachers in their first ten years of teaching and teachers in years 21-30 of teaching. One possibility is that teachers who just begin their career can be excited and eager to excel in their career so they may be more likely to make and plan more adaptations in their class. Teachers A (elem.) and B (mid.) support this claim by saying that newer teachers have new ideas and have learned the newest strategies to meet students needs. Teacher with more experience, 21-30 years, have just that, more experience. Therefore, they may know which adaptations are more effective and how many they should use. It was also concluded that teachers in their 11-20 years of teaching have more family responsibilities than during other parts of their career (Lortie, 1976). This increase in family responsibility impacts the time and effort they put into making adaptations for students with cognitive disabilities. Teacher B (mid.) and C (elem.) both agreed that their families influence their careers. Teacher B
(mid.) explained that he currently has three young children and due to this added responsibility, he attends less professional development than previously. He then stated that he makes up for this lack of professional development by communicating more with students’ current and past teachers. Teacher C (elem.) did not partake in extracurricular activities outside of the school day when she had young children, but she made it clear that those family responsibilities did not affect the amount of adaptations she used for students with cognitive disabilities. This dip in the amount of adaptations was not seen in the three physical education teachers observed because they all used about the same number of adaptations when being observed. However, teacher B (mid.), who according to the survey data, should have used less adaptations, used about the same as the other two teachers observed due to the fact that he was teaching students ages 9-15. The following paragraph explains that according to the survey, this age range requires more adaptations than other age ranges of students.

Physical educations teachers used about six more adaptations when teaching students ages 9-15 than the numbers used with any other age group. Teacher B (mid.) said that students in this age range have a wider spectrum of abilities so they require more adaptations. Teacher B (mid.) who teaches the age range that is seen to require more adaptations used about the same number of adaptations as the two other teachers observed. This could be due to the fact that teacher B (mid.) is in his twelfth year teaching and may be using fewer adaptations due to family responsibilities. This push and pull on teacher B (mid.) to use more and less adaptations according to his stage in his career and the demographic of students he teaches leads to a balance of him using about the same amount of adaptations as the other two teaches observed.

Physical education teachers who taught larger classes used more adaptations than teachers who taught smaller classes. This increase in adaptation use could easily be explained by the larger class size. The more students a teacher has the more likely they are to have more students with cognitive disabilities. Therefore, they use more adaptations in their class. From
the survey data, teachers who teach the middle range of class size (350-500 students) use more operational guidelines adaptations than teachers who teach the other two groups of class sizes. Operational guideline adaptations work best for a moderate amount of students due to the time it takes to plan and the adaptation’s ability to make class more efficient. Teachers who teach the largest class size used more physical/visual adaptations than the smaller class sizes. Physical/visual adaptations promote independence so teachers who teach large classes use these more because they have less time to spend with individual students.

Physical education teachers who taught more students with cognitive disabilities used more adaptations according to the survey data. This increase in use of adaptations positively corresponds with the increase in students with cognitive disabilities. The more students with cognitive disabilities a physical education teacher teaches, the more adaptations they use.

Physical education teachers who taught inclusion classes used more adaptations than teachers who did not teach inclusion classes. This is logical because inclusion classes contain more students with cognitive disabilities, so teachers must use more adaptations to meet the students’ needs. The survey data indicated only a small difference between teachers’ number of adaptations and whether or not they are teaching an inclusion class. Some of the physical education teachers surveyed taught only adapted physical education classes so technically they do not teach inclusion classes. Therefore, they are still using adaptations to meet the needs of their students with cognitive disabilities. The small difference between inclusion teachers and non-inclusion teachers in terms of the amount of adaptations they use also demonstrates that adaptations benefit students without disabilities as well. Adaptations can help general education teachers differentiate and create a universal classroom conducive to all learning styles and levels of ability.

The survey data indicated that physical education teachers use less physical/visual adaptations than the other two categories. It was concluded from the survey that teachers use
less physical/visual adaptations because it takes more time to make the adaptations. Teacher B (mid.) commented that some teachers do not use the physical/visual adaptations often because it takes time to create them and they are not always effective so they think they have wasted their time. However, it can be concluded that younger teachers, like teacher A (elem.), seem more willing to create and use physical/visual adaptations. Teacher A (elem.) found herself to be opposite of the survey data because she uses the physical/visual adaptations the most compared to the other teachers who use it the least. Teacher B (mid.) explained that he formerly used more physical/visual adaptations but now uses them in the form of technology. During the observations, teacher A (elem.) and B (mid.) were seen using some form of physical/visual adaptations i.e. whiteboards in their gym. However, teacher B (mid.) only used his white board as a written schedule; he wrote what the students would be doing in class that day. Teacher A (elem.) had two large white boards and she had different task cards depicting exercises on the board. She said the students could choose different exercises off of the board.

The second and third most effective adaptations, picture directions and repetition, according to physical education teachers received the same rating as general education teachers. This indicates that these adaptations used in physical education can be generalized to academic classrooms as well. Also, not only can they be generalized, but they are still effective for students with cognitive disabilities in multiple environments.
CHAPTER VI

Themes and Recommendations for Further Study

Theme 1: Career Cycles

It was evident that physical education teachers go through a cycle in their career. Younger teachers come out of school with the latest information and are often eager to jump-start their careers. Physical education teachers in their career years of 11-20 used fewer adaptations than other physical education teachers in years 1-10 and 21-30. The data from this study demonstrates a dip in the middle of a teacher’s career. Teachers near the end of their careers need opportunities to make a difference and pass down their wisdom. The data from this study demonstrated that there was a relationship between gender and the adaptations used. Male physical education teachers tend to use less physical/visual adaptations than females.

Recommendations

It is recommended that schools provide teachers with focused professional development opportunities. For physical education teachers these professional development opportunities should be focused on physical education, students with cognitive disabilities, and making effective adaptations. Schools can bring in people to do workshops on teacher in service days or give these teachers opportunities to attend professional development activities. Teachers early in their career need supervision by more experienced teachers or administration. They also need time to discuss and reflect with mentor teachers and other colleagues. Teachers in the middle of their career need updated information on the latest in education. These teachers also need to be supervised similarly to the teachers early in their career. The teachers in the middle of their career need opportunities to observe other teachers and give feedback. Teachers in the end of their career need opportunities to mentor younger teachers. These teachers also need leadership opportunities to share their experiences and wisdom.
To increase the adaptation use of teachers in the middle of their career universal adaptation samples were provided in the appendix to become a resource for these teachers. By using these adaptations they will increase their use for students with cognitive disabilities. The handbook is also a resource for intervention specialists to provide these teachers with help and guidance when using and creating effective adaptations. Other resources, such as the websites listed in the handbook can also be a source for these teachers to find more information. Training teachers in the school buildings to become diverse learning specialists, like teacher A (elem.), will create a specialized person these teachers can go to in order to improve their adaptation usage.

In order to increase the use of physical/visual adaptations by all physical education teachers, universal physical/visual adaptations have been created. For example, picture directions were created for how to hit a baseball and can be found in Appendix U. Cue cards also were created with the universal tasks of run and walk. These can be found in Appendix AA. Another physical/visual adaptation made with universal tasks that would be used throughout a class period was a picture schedule. The picture schedule consists of four tasks: walking, stretching, catching, and basketball. The picture schedule can be found in Appendix Q. A checklist that is used in teacher A’s classroom can be found in Appendix BB. A task card example can be found in Appendix R and it teaches a student how to do a forward roll. A First Then template can be found in Appendix S. Another physical/visual adaptation that can be helpful is a “Complete This Task” card. These can be found in Appendix V. Teacher A explained how she uses token boards and how they are beneficial. Therefore, a template for a token board is provided in Appendix T.
Theme 2: Time/Ease of Use

In the surveys, the physical education teachers explained how time is often a problem for them. They do not have enough time to create adaptations for their students with cognitive disabilities.

Recommendations

The goal of this study was to provide physical education teachers with some physical/visual adaptations that are premade (Appendix Q, R, S, T, U, V, AA, and BB) so they can use them right away or only adjust them a small amount to fit the needs of their students. This eliminates the prep time that teachers need to spend creating and preparing these. These adaptations cannot only be used by physical education teachers but general education teachers as well. This will hopefully increase the use of physical/visual adaptations in physical education classes.

The adaptations identified that take little prep time are one on one, shortened activity times, and hand over hand. These do not require time to plan and are beneficial in helping students with cognitive disabilities learn skills. These adaptations can also be used by physical and general education teachers.

The handbook of adaptations is a guide for both general and physical education teachers for making adaptations. It is a resource for teachers by giving samples, providing descriptions, pictures, technology, websites, and examples. All of this information can reduce the time teachers invest in creating and implementing adaptations for students with cognitive disabilities. The adaptations in the handbook have been shown to be useful to teachers and students. Each student is unique so a teacher, physical education or general education, must find the adaptations that works best for their student. Intervention specialists are encouraged to use this as a resource to give to their teachers in order to promote their use of effective adaptations for students with cognitive disabilities.
Technology can be beneficial for creating adaptations for students with cognitive disabilities. Using technology may also motivate students more because many students enjoy the use of technology outside of school. For example, using iPads can create effective adaptations that might replace some of the physical/visual adaptations and take less time to prepare. Physical education teachers can record students correctly doing a skill and show it to students with cognitive disabilities. This gives them a visual representation of what they should be doing. Teachers can also record the students performing the skill and play it back to them pointing out areas they can improve. The students can compare what they are doing to what they should be doing by watching their video and the demonstration video. Physical education teachers can use projectors to demonstrate how to complete a skill to the whole class. Showing videos and pictures of the skill will benefit all students in the class. In addition, there are new programs for projectors that allow students to play games on the walls. For example, a projector can project bugs and other objects on the wall and students are given balls to aim and throw at the bugs. When a ball hits a bug, it disappears. There are many games and activities using technology that help students improve their physical education skills.

Focused professional development is recommended to counter the issue of time and ease of use. The professional development should focus on technology and adaptations. Technology and learning how to make effective adaptations can reduce time and can increase the ease of use of adaptations.

Teachers can reach out to the community to find volunteers. Volunteers can create materials for adaptations. This is something that parents or community members who aren’t available during the school year can do at home.

It is recommended that physical education teachers use teacher modeling because it is the easiest adaptation to implement. Also, shortened activity times and picture directions are easy for physical education teachers to implement. Physical education teachers said that task cards
were the most difficult to implement. This could be because of the time it takes to prepare these so there are universal samples in appendix R that are recommended to use.

Some adaptations were identified to be more effective than others. The physical education teachers believed one on one attention, teacher modeling, and repetition of rules and skills can be very effective for students with cognitive disabilities. These adaptations also do not require a large amount of preparation time. Other adaptations that were identified to be effective are checklists, picture/visual adaptations, and hand over hand. Ultimately, teachers need to find the adaptations that are best for each individual student.

**Theme 3: Tension and Demand**

Tension and demand between general education students and students with cognitive disabilities in the classroom was another theme of concern for physical education teachers. Students with cognitive disabilities often require more attention, but teachers do not want to take time away from helping students without disabilities in the class. Teachers must educate a class of active students coupled with a small number of students demanding intensive individual attention. This tension and demand adds a unique emotional impact to the teacher. The physical education teachers also identified the theme of lack of support in their classes. They would all like to have a paraprofessional with the students with cognitive disabilities; however, in many school districts the funds are unavailable for a paraprofessional. The nature of the cognitive disability can also cause tension and demand within the class.

**Recommendations**

An adaptation that addresses the issue of support is peer modeling and teaching for students with disabilities. It was observed that peer modeling and teaching is effective for students with cognitive disabilities. However, teachers must thoroughly think about which student to pair with the student with a cognitive disability. Teachers can also train a group of
student aides. These students can be peers from classes or peers who are potential future teachers.

Teachers can reach out to the community for volunteers to be aides in the classroom. These volunteers can work one on one with students and provide support to the teachers. This would reduce the emotional impact on the teacher because the volunteers would provide support in the classroom.

It is recommended that teachers use adaptations that promote independence. Checklists can be a beneficial adaptation because they provide independence to students with cognitive disabilities. Using visual cues and boundaries can help all students understand what they should be doing. Also, repetition of rules and skills is another adaptation that is beneficial to all students in the class to clarify understanding. Learning stations can help teachers divide their attention equally in the class between students with cognitive disabilities and students without cognitive disabilities.

It is recommended that class sizes be reduced so that they are proportional to the population’s number of students with cognitive disabilities versus students without disabilities.

Prepackaged adaptation materials coupled with professional development related to the adaptation use are recommended. These prepackaged adaptation materials can be found in the handbook and appendix. Professional development should focus on adaptations and using them effectively.

The nature of the cognitive disability can cause some issues for teachers when working with students with cognitive disabilities. To counter these issues, one on one attention can help teachers teach the student a skill and make sure they understand it. Towards this end, task cards help the students visually see the task and read about how to do it. Extrinsic rewards can motivate students with cognitive disabilities. This can be done in the form of token boards and it
is important that the reward is something the student wants. Visual boundaries such as cones can help students understand where they are supposed to be or what area they are supposed to stay in.

The physical education teachers ranked teacher modeling, picture directions, and repetition as the top three most effective adaptions. It is recommended that physical education use these adaptions for students with cognitive disabilities because they are believed by the teachers to be the most effective. Direct instruction adaptions seem to be the most effective according to physical education teachers because four out of the five adaptions in that category fall in the top five most effective adaptions.

It is recommended that general education teachers use one on one attention for students with cognitive disabilities because it was ranked as the most effective. Other adaptions that are highly effective for general education teachers are picture directions and repetition, which is similar to physical education teachers. It is recommended for general education teachers to avoid using extrinsic rewards unless it works for individual students because it was the least recommended adaptation. However, this could be due to general education teachers sometimes not choosing a reward that is motivating for students. The direct instruction adaptions are recommended for general education teachers because four out of the five adaptions in this category fall in the top five most effective adaptions.

Further Research

An area of further study can be how technology is used to create effective adaptions for students with cognitive disabilities. Some suggestions are given on how to use technology to adapt activities in physical education but there is a vast amount of technology out there that can be used to create adaptions for students with cognitive disabilities. Technology opens many opportunities for teachers to create effective and individualized adaptions for their students.
Another area for further research is to look into ways to increase use of adaptations for students under the age of nine and above age fifteen. It was discovered in this research that physical education teachers are using more adaptations for ages nine to fifteen. Further research can be done to find ways to increase the use of adaptations for students outside of that age range.

Research can be furthered in the area of ongoing professional development and support for teachers. The teachers interviewed seemed to have few opportunities for professional development particularly focused professional development on physical education, students with cognitive disabilities, and adaptations.

**Conclusions**

The study focused on adaptations physical education teachers use for students with cognitive disabilities. However, the ranking adaptation lists that were sent to the general education teachers gave data showing that these same adaptations used in physical education are generalizable to academic classes. General education teachers are using these same adaptations and they are proving to be effective for students with cognitive disabilities not only in physical education but general education as well.

Teachers need different support throughout their careers. Teachers who are early on in their career, in the middle of their career, or near the end of their career need different support and information. Intervention specialists need to focus the type of assistance that they give to teachers at different career points. They also need to consider the teachers gender because male and female teachers require different support and information as well.

Family responsibilities impact teachers at different points of their career. Teachers early on in their career have less family responsibilities than in the middle and end of their career. The middle of a teacher’s career is typically when family responsibilities are the most demanding. Intervention specialists need to be aware of these family responsibilities and provide support and information that is tailored to the teacher’s needs.
Professional development is vital for effective teachers. There is a lack of focused professional development for physical education teachers. Very rarely are physical education teachers provided with focused professional development concerning their field. More often they are only provided generalized professional development, which is not what they need. It is important that physical education teachers receive this focused professional development.
References


https://www.researchgate.net/profile/Mitchell_Yell/publication/249833712_The_History_of_Special_Education_What_a_Long_Strange_Trip_It's_Been!/links/0c96053e537ffe0a02000000.pdf
APPENDIX A

FIGURE 2.1. STUDENT PARTICIPATION IN PHYSICAL EDUCATION
APPENDIX A

Figure 2.1. Student Participation in Physical Education

Student Participation in Physical Education

[Bar chart showing participation percentages for Inclusion PE, Adapted Inclusion PE, and Separate Adapted PE categories.]
APPENDIX B

Survey

Adaptations for Students with Cognitive Disabilities Survey

Kayle Timura and Dr. Carl Walley in Ashland University’s Education Department are conducting a research study to create a handbook of example adaptations to include students with cognitive disabilities successfully in physical education classrooms. We are interested in studying the adaptations that are currently being made for students with cognitive disabilities and the benefits of those adaptations. If you would like additional information concerning this study before or after it is completed, or have any issues or concerns, please contact one of us by phone or email. Thank you very much for your time, and we appreciate your interest and cooperation.

Please answer the following questions by circling or filling in your response:

1. Male or Female
2. Number of years you have taught: ___________
3. Age range of students you teach: 9-10 11-13 14-15 Other: _______
4. Please indicate the average number of students you teach a year: ______________________
5. Please indicate the average number of students with cognitive disabilities you teach a year: _________________
6. Is your classroom an inclusion classroom: yes or no
7. Please check the adaptations you currently use or have used in your classroom for students with cognitive disabilities:

- Pictures used for directions (ex. of the activity, posture/poses, places in the gym, etc.)
- Written directions
- Cue cards (ex. indicate behavior, steps in an activity, etc.)
- Learning stations
- Detailed modeling by PE teacher or aide/paraprofessional for students with cognitive disabilities
- Hand over hand (physically guiding the student through a desired motion)
- Peer teaching or modeling by fellow student(s)
- One on one attention/ paraprofessional/ aide
- Picture schedules
- Checklists (ex. steps in an activity, warm up, etc.)
- Start and stop cues
- Extrinsic reward systems
- Repetition of rules/skills for students with cognitive disabilities to assure understanding
- Shortened activity times
- Visuals for boundaries (ex. jump ropes, cones, etc)
- Task cards for a specific activity
- Other (please describe): ________________________________
8. Of the Adaptations you checked, which do you use the most and the least? Please briefly explain why.

Most: _____________________________________________________________

____________________________________________________________________

Least: _____________________________________________________________

____________________________________________________________________

9. Which three adaptations listed do you believe are the most beneficial and why?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

10. What are the most common difficulties you encounter when teaching students with cognitive disabilities in your classroom?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Thank you for your participation!

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(419) 289-5253
cwalley@ashland.edu
APPENDIX C

FIGURE 4.10 INTERVIEWED PHYSICAL EDUCATION TEACHERS
**APPENDIX C**

**Figure 4.10. Interviewed Physical Education Teachers**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Years of Experience</th>
<th>Gender</th>
<th>Cognitive Disabilities/ Total Students</th>
<th>Observed Adaptations Used</th>
</tr>
</thead>
</table>
| A       | 3                   | Female | 50/800                                  | - One on one  
- Start and stop cues  
- Repetition  
- Microphones  
- Written directions  
- Task cards  
- Extrinsic reward system  
- Checklists  
- Modeling |
| B       | 12                  | Male   | 6/360                                   | - One on one  
- Start and stop cues  
- Repetition  
- Microphones  
- Written directions  
- Modeling  
- Paraprofessional  
- Peer Modeling/Teaching  
- Equipment Modifications |
| C       | 30                  | Female | 5-10/450                                | - One on one  
- Start and stop cues  
- Repetition  
- Modeling  
- Peer Modeling/Teaching  
- Equipment Modifications  
- Hand over Hand |
APPENDIX D

HANDBOOK RUBRIC
APPENDIX D

Handbook Rubric

Quality of examples for all Teachers

☐ high

☐ moderate

☐ low

If you believe any of the examples were of moderate or low quality, please indicate how they can be improved

Organization

☐ good

☐ fair

☐ poor

If you believe that the organization was fair or poor, please offer suggestions on how it can be improved

Usefulness

☐ very useful

☐ moderately useful

☐ not very useful

If you believe that the handbook is only moderately useful or not very useful, please offer suggestions on how to improve its usefulness

Please indicate any strengths of the handbook
Please indicate any weaknesses of the handbook and how to improve them

Other suggestions
APPENDIX E

INTERVIEW QUESTIONS
APPENDIX E

Interview Questions

1. Level of pre-service training on adaptive physical education and students with cognitive disabilities

2. Opportunities for professional development for students with cognitive disabilities and physical education

3. Where do you get your information regarding the nature/needs of students with cognitive disabilities and appropriate adaptations?

4. How have you changed from previous years in terms of amount of adaptations you use?

5. I observed a change in use: high beginning and end, lower middle of career. Why do you think there is a dip?

6. How much do/did family responsibilities impact the amount and types of adaptations you use/used? Has this changed during your career?

7. More adaptations are used for students' ages 9-15 than any other age range. Why do you believe this is the case?

8. Chart of three categories: Agree/Disagree and why

9. The data we collected showed the difference between male and females in the physical/visual category that females were three times more likely to use adaptations in this category...why do you think this is?

10. Do/would you use visual directions for physical education?

11. If made, what are some universal tasks that you would benefit from using visual directions?

12. Why do you think task cards are least used?

13. What kind of technology do you use in your classroom?
APPENDIX F

PHYSICAL EDUCATION TEACHER RANKING ADAPTATIONS LIST
APPENDIX F

Physical Education Teacher Ranking Adaptations List

Physical Education Teacher- Adaptations

Kayle Timura and Dr. Carl Walley in Ashland University’s Education Department are conducting a research study to create a handbook of example adaptations to include students with cognitive disabilities successfully in physical education classrooms. We are interested in studying the adaptations that are currently being made for students with cognitive disabilities and the benefits of those adaptations. If you would like additional information concerning this study before or after it is completed, or have any issues or concerns, please contact one of us by phone or email. Thank you very much for your time, and we appreciate your interest and cooperation.

Please rank the following adaptations from MOST EFFECTIVE (1) to LEAST EFFECTIVE (16):

1. Pictures used for directions (ex. of the activity, posture/poses, places in the gym, etc.)
2. Written directions
3. Cue cards (ex. indicate behavior, steps in an activity, etc.)
4. Learning stations
5. Detailed modeling by PE teacher or aide/paraprofessional for students with cognitive disabilities
6. Hand over hand (physically guiding the student through a desired motion)
7. Peer teaching or modeling by fellow student(s)
8. One on one attention/ paraprofessional/ aide
9. Picture schedules
10. Checklists (ex. steps in an activity, warm up, etc.)
11. Start and stop cues
12. Extrinsic reward systems
13. Repetition of rules/skills for students with cognitive disabilities to assure understanding
14. Shortened activity times
15. Visuals for boundaries (ex. jump ropes, cones, etc)
16. Task cards for a specific activity

Please rank the following adaptations from EASIEST TO IMPLEMENT (1) to MOST DIFFICULT TO IMPLEMENT (16):

1. Pictures used for directions (ex. of the activity, posture/poses, places in the gym, etc.)
2. Written directions
3. Cue cards (ex. indicate behavior, steps in an activity, etc.)
4. Learning stations
5. Detailed modeling by PE teacher or aide/paraprofessional for students with cognitive disabilities
6. Hand over hand (physically guiding the student through a desired motion)
7. Peer teaching or modeling by fellow student(s)
8. One on one attention/ paraprofessional/ aide
9. Picture schedules
10. Checklists (ex. steps in an activity, warm up, etc.)
11. Start and stop cues
Extrinsic reward systems
Repetition of rules/skills for students with cognitive disabilities to assure understanding
Shortened activity times
Visuals for boundaries (ex. jump ropes, cones, etc)
Task Cards for a specific activity
APPENDIX G

GENERAL EDUCATION TEACHER RANKING ADAPTATIONS LIST
APPENDIX G

General Education Teacher Ranking Adaptations List

Kayle Timura and Dr. Carl Walley in Ashland University’s Education Department are conducting a research study to create a handbook of example adaptations to include students with cognitive disabilities successfully in classrooms. We are interested in studying the adaptations that are currently being made for students with cognitive disabilities and the benefits of those adaptations. If you would like additional information concerning this study before or after it is completed, or have any issues or concerns, please contact one of us by phone or email. Thank you very much for your time, and we appreciate your interest and cooperation.

Please rank the following adaptations from MOST EFFECTIVE (1) to LEAST EFFECTIVE (16):

____ Pictures used for directions (ex. of the activity, posture/poses, places, etc.)
____ Written directions
____ Cue cards (ex. indicate behavior, steps in an activity, etc.)
____ Learning stations
____ Detailed modeling by teacher or aide/paraprofessional for students with cognitive disabilities
____ Hand over hand (physically guiding the student through a desired motion)
____ Peer teaching or modeling by fellow student(s)
____ One on one attention/ paraprofessional/ aide
____ Picture schedules
____ Checklists (ex. steps in an activity, warm up, etc.)
____ Start and stop cues
____ Extrinsic reward systems
____ Repetition of rules/skills for students with cognitive disabilities to assure understanding
____ Shortened activity times
____ Visuals for boundaries (ex. jump ropes, cones, etc.)
____ Tasks cards for a specific activity

Please rank the following adaptations from MOST LIKELY TO USE (1) to LEAST LIKELY TO USE (16):

____ Pictures used for directions (ex. of the activity, posture/poses, places, etc.)
____ Written directions
____ Cue cards (ex. indicate behavior, steps in an activity, etc.)
____ Learning stations
____ Detailed modeling by teacher or aide/paraprofessional for students with cognitive disabilities
____ Hand over hand (physically guiding the student through a desired motion)
____ Peer teaching or modeling by fellow student(s)
____ One on one attention/ paraprofessional/ aide
____ Picture schedules
____ Checklists (ex. steps in an activity, warm up, etc.)
Start and stop cues
Extrinsic reward systems
Repetition of rules/skills for students with cognitive disabilities to assure understanding
Shortened activity times
Visuals for boundaries (e.g., jump ropes, cones, etc.)
Task cards for a specific activity
APPENDIX H

FIGURE 4.2. THREE CATEGORIES CHART
## APPENDIX H

### Figure 4.2. Three Categories Chart

<table>
<thead>
<tr>
<th>Category</th>
<th>Task Orientation</th>
<th>Prep Time</th>
<th>Group or Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Instruction</td>
<td>Single task</td>
<td>Minimal prep time</td>
<td>Individual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One time use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spontaneous</td>
<td></td>
</tr>
<tr>
<td>Operational Guidelines</td>
<td>Set boundaries</td>
<td>Pre planned</td>
<td>Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate prep time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple uses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Universal</td>
<td></td>
</tr>
<tr>
<td>Physical/Visual</td>
<td>Multiple tasks</td>
<td>Advanced planning</td>
<td>Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Most prep time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple uses</td>
<td>Individual</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Direct Instruction: One on one, Repetition, Teacher modeling, Peer modeling, Hand over hand
- Operational Guidelines: Written directions, Learning stations, Shortened times, Visual boundaries, Extrinsic rewards, Start and stop
- Physical/Visual: Picture directions, Cue cards, Picture schedules, Checklists, Task cards
APPENDIX I

FIGURE 4.1. FREQUENCY OF ADAPTATIONS CHART
APPENDIX I

Figure 4.1. Frequency of Adaptations Chart

Figure 4.1. Frequency of physical education adaptations for students with cognitive
APPENDIX J

FIGURE 4.3. MALE VS. FEMALE CHART
APPENDIX J

Figure 4.3. Male Vs. Female Chart

Male Vs. Female

- Direct instruction
- Operational guidelines
- Physical/visual

male
female

0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
APPENDIX K

FIGURE 4.4. NUMBER OF YEARS TEACHING CHART
APPENDIX K

Figure 4.4. Number of Years Teaching Chart
APPENDIX L

FIGURE 4.5. AGE RANGE OF STUDENTS TAUGHT CHART
Figure 4.5. Age Range of Students Taught Chart

**Age Range of Students Taught**

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Average Number of Adaptations Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 3-9</td>
<td>3</td>
</tr>
<tr>
<td>Ages 9-15</td>
<td>10</td>
</tr>
<tr>
<td>Ages 16-18</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX M

FIGURE 4.6. NUMBER OF STUDENTS TAUGHT CHART
Figure 4.6. Number of Students Taught Chart
APPENDIX N

FIGURE 4.7. NUMBER OF STUDENTS WITH A COGNITIVE DISABILITY CHART
APPENDIX N

Figure 4.7. Number of Students with a Cognitive Disability Chart

Number of Students with a Cognitive Disability

<table>
<thead>
<tr>
<th>Frequency of Adaptations</th>
<th>1-20 Students</th>
<th>30-60 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- 0-20 Students
- 30-60 Students
APPENDIX O

FIGURE 4.8. INCLUSION CLASS CHART
APPENDIX O

Figure 4.8. Inclusion Class Chart

![Inclusion Class Chart](image)
APPENDIX P

FIGURE 4.9. EMERGING THEMES
### APPENDIX P

#### Figure 4.9. Emerging Themes

<table>
<thead>
<tr>
<th>Emerging Theme Description</th>
<th>Time</th>
<th>Support</th>
<th>Tension/Demand</th>
<th>Characteristics</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Individual students</td>
<td>• Preparation time</td>
<td>• Peers • Paraprofessionals • Aides</td>
<td>• General education students • Students with cognitive disabilities</td>
<td>• Characteristics of the cognitive disability that affect student’s learning</td>
<td>• Usefulness • Effectiveness</td>
</tr>
</tbody>
</table>
APPENDIX Q

PICTURE SCHEDULE ADAPTATION
APPENDIX Q

Picture Schedule Adaptation

1. Walk

2. Stretch

3. Catch

4. Basketball
APPENDIX R

TASK CARD ADAPTATIONS
APPENDIX R

Task Card Adaptations

Volleyball Striking

PASS/BUMP

Pass the ball back and forth with a partner

1. Ready Position
   - Relaxed and ready to move in any direction
   - Shoulders are square to the ball
   - Feet slightly wider than shoulder width with knees flexed
   - Trunk is slightly bent forward with arms and shoulders relaxed in front of the body

2. Pre Contact
   - Arms must straighten and grip hands together to create a flat contact surface from wrists to elbows
   - Knees are bent around 90 degrees
   - One foot slightly in front of the other

3. Contact
   - Arms are straight forming a 90 degree angle with thighs
   - The trunk is straight with a forward lean
   - The ball contacts both forearms at a point slightly above the wrists
   - Arms swing slightly forward and upward to contact the ball

4. Follow Through
   - The body moves forward in a direction towards the target
   - Then resume ready position in preparation for the next action
FORWARD ROLL

1. Start in a full squat with your hands out in front.
2. Tuck your chin into your chest.
3. Push with your legs and place your hands down on the mat first.
4. Roll on the back part of your head and stay in a tight ball grabbing your knees as you roll.
5. Let your momentum carry you back to your feet.
APPENDIX S

FIRST THEN ADAPTATION
APPENDIX S

First Then Adaptation

First

Then
APPENDIX T
TOKEN BOARD ADAPTATION
I am working for...
APPENDIX U

PICTURE DIRECTIONS ADAPTATION
APPENDIX U

Picture Directions Adaptation

1. put ball on
2. hit ball
3. when you hit ball
4. run to first base
APPENDIX V

TO COMPLETE THIS TASK ADAPTATION
APPENDIX V

To Complete This Task Adaptation

<table>
<thead>
<tr>
<th>To complete this task I will...</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To complete this task I will...</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX W

FIGURE 4.11. PHYSICAL EDUCATION TEACHER: MOST EFFECTIVE TO LEAST EFFECTIVE
### APPENDIX W

**Figure 4.11. Physical Education Teacher: Most Effective to Least Effective**

<table>
<thead>
<tr>
<th>Physical Education Teachers: Most Effective (1) to Least Effective (16)</th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Instruction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher modeling</td>
<td>1,2,6,4</td>
<td>3.25</td>
<td>1</td>
</tr>
<tr>
<td>Repetition</td>
<td>3,4,15,1</td>
<td>5.75</td>
<td>3</td>
</tr>
<tr>
<td>Peer modeling/teaching</td>
<td>5,3,12,3</td>
<td>5.75</td>
<td>4</td>
</tr>
<tr>
<td>One on one</td>
<td>2,1,10,10</td>
<td>5.75</td>
<td>5</td>
</tr>
<tr>
<td>Hand over hand</td>
<td>4,10,11,11</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning stations</td>
<td>16,6,4,6</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Shortened activity times</td>
<td>9,5,8,14</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Visual boundaries</td>
<td>7,16,9,12</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>11,14,14,8</td>
<td>11.75</td>
<td>14</td>
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<tr>
<td>Start and stop cues</td>
<td>10,13,13,13</td>
<td>12.25</td>
<td>15</td>
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<tr>
<td>Written directions</td>
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<tr>
<td><strong>Physical/Visual</strong></td>
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<td></td>
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<tr>
<td>Picture directions</td>
<td>6,7,3,5</td>
<td>5.25</td>
<td>2</td>
</tr>
<tr>
<td>Picture schedules</td>
<td>8,11,1,9</td>
<td>7.25</td>
<td>6</td>
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<tr>
<td>Checklists</td>
<td>12,12,7,2</td>
<td>8.25</td>
<td>8</td>
</tr>
<tr>
<td>Task cards</td>
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<td>9.25</td>
<td>11</td>
</tr>
<tr>
<td>Cue cards</td>
<td>15,8,5,15</td>
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</tbody>
</table>
APPENDIX X

FIGURE 4.12. PHYSICAL EDUCATION TEACHER: EASIEST TO IMPLEMENT TO MOST DIFFICULT TO IMPLEMENT
### APPENDIX X

**Figure 4.12. Physical Education Teacher: Easiest to Implement to Most Difficult to Implement**

<table>
<thead>
<tr>
<th>Physical Education Teachers: Easiest to Implement (1) to Most Difficult to Implement (16)</th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Instruction</strong></td>
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<td></td>
</tr>
<tr>
<td>Teacher modeling</td>
<td>3,1,10,4</td>
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<td>1</td>
</tr>
<tr>
<td>Peer modeling/teaching</td>
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<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Hand over hand</td>
<td>10,3,11,9</td>
<td>8.25</td>
<td>7</td>
</tr>
<tr>
<td>Repetition</td>
<td>4,5,14,12</td>
<td>8.75</td>
<td>8</td>
</tr>
<tr>
<td>One on one</td>
<td>9,2,16,16</td>
<td>10.75</td>
<td>15</td>
</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortened activity times</td>
<td>5,6,8,1</td>
<td>5</td>
<td>2</td>
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<tr>
<td>Start and stop cues</td>
<td>1,7,9,13</td>
<td>7.5</td>
<td>5</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>12,4,13,2</td>
<td>7.75</td>
<td>6</td>
</tr>
<tr>
<td>Learning stations</td>
<td>7,12,3,14</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Written directions</td>
<td>8,9,15,6</td>
<td>9.5</td>
<td>12</td>
</tr>
<tr>
<td>Visual boundaries</td>
<td>6,16,7,11</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td><strong>Physical/Visual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture directions</td>
<td>13,8,2,5</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Checklists</td>
<td>11,10,5,10</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Picture schedules</td>
<td>14,14,1,8</td>
<td>9.25</td>
<td>11</td>
</tr>
<tr>
<td>Cue cards</td>
<td>16,13,4,7</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Task cards</td>
<td>15,15,6,15</td>
<td>12.75</td>
<td>16</td>
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</tbody>
</table>
APPENDIX Y

FIGURE 4.13. GENERAL EDUCATION TEACHER: MOST EFFECTIVE TO LEAST EFFECTIVE
### General Education Teachers: Most Effective (1) to Least Effective (16)

<table>
<thead>
<tr>
<th>Method</th>
<th>Raw Data</th>
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<tbody>
<tr>
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</tr>
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</tr>
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</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start and stop cues</td>
<td>8,10,10,3,10,9,14,8,5,9,8,10,11</td>
<td>8.846</td>
<td>9</td>
</tr>
<tr>
<td>Learning stations</td>
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</tr>
<tr>
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</tr>
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<tr>
<td>Visual boundaries</td>
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<tr>
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</tr>
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<td><strong>Physical/Visual</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Picture directions</td>
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<td>5.231</td>
<td>2</td>
</tr>
<tr>
<td>Picture schedules</td>
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<td>7.385</td>
<td>6</td>
</tr>
<tr>
<td>Cue cards</td>
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<td>7</td>
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<td>9.929</td>
<td>11</td>
</tr>
</tbody>
</table>
APPENDIX Z

FIGURE 4.14. GENERAL EDUCATION TEACHER: MOST LIKELY TO USE TO LEAST LIKELY TO USE
APPENDIX Z

Figure 4.14. General Education Teacher: Most Likely to Use to Least Likely to Use

<table>
<thead>
<tr>
<th>General Education Teachers: Most Likely to Use (1) to Least Likely to Use (16)</th>
<th>Raw Data</th>
<th>Average</th>
<th>New Rank based on Averages</th>
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</thead>
<tbody>
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<td><strong>Direct Instruction</strong></td>
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</tr>
<tr>
<td>Repetition</td>
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</tr>
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<tr>
<td>Hand over hand</td>
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<td>12.154</td>
<td>16</td>
</tr>
<tr>
<td><strong>Operational Guidelines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start and stop cues</td>
<td>8,1,9,2,10,6,12,15,4,4,7,10,13</td>
<td>7.769</td>
<td>7</td>
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<tr>
<td>Written directions</td>
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<td>8.231</td>
<td>8</td>
</tr>
<tr>
<td>Shortened activity times</td>
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</tr>
<tr>
<td>Visual boundaries</td>
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<td>13</td>
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<td><strong>Physical/Visual</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Picture directions</td>
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<td>6.769</td>
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</tr>
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<td>7.154</td>
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<tr>
<td>Picture schedules</td>
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</tr>
<tr>
<td>Cue cards</td>
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<td>9.231</td>
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</tr>
<tr>
<td>Task cards</td>
<td>15,5,14,8,11,13,8,9,8,12,12,8,12</td>
<td>10.385</td>
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</tr>
</tbody>
</table>
APPENDIX AA

CUE CARD ADAPTATIONS
APPENDIX AA

Cue Card Adaptations
MUSCULAR STRENGTH AND ENDURANCE

PUSH-UPS

CARDIOVASCULAR ENDURANCE

JUMPING JACKS
APPENDIX BB

CHECKLIST ADAPTATION
APPENDIX BB

Checklist Adaptation

| Checklist |

- Find my spot and complete my breathing exercises

- Complete my locomotors while keeping my hands to myself

- Throw at the target ten times while using the correct throwing form

- Respect my friends and do not yell during the activity
APPENDIX CC

WRITTEN DIRECTIONS ADAPTATION
APPENDIX CC

Written Directions Adaptation

<table>
<thead>
<tr>
<th>Written Directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Write your name at the top right hand of the page</td>
</tr>
<tr>
<td>2. Write the date at the top left hand of the page</td>
</tr>
<tr>
<td>3. Get out a scrap piece of paper to do your work on</td>
</tr>
<tr>
<td>4. Begin with question number one</td>
</tr>
<tr>
<td>5. Quietly ask your partner any questions you might have</td>
</tr>
</tbody>
</table>
APPENDIX DD

HUMAN SUBJECTS REVIEW BOARD AUTHORIZATION
APPENDIX DD

Human Subjects Review Board Authorization

TO: Kayle Timura and Dr. Carl Walley
FROM: Chris Chartier, HSRB Chair
DATE: October 10th, 2016
SUBJECT: Human Subjects Review Board Approval
PROJECT TITLE: Handbook for Adopting Physical Activities for Students with Congestive Disabilities

hsrb approval code: 9-19-2016-#021

The Human Subjects Review Board has approved your research study. You may proceed with the study as you have outlined in your proposal. The approval is granted for one calendar year. Research participant interaction and/or data collection is to cease at this time, unless application for extension has been submitted and approval for continuance is obtained.

The primary role of the HSRB is to ensure the protection of human research participants. As a result of this mandate, we ask that you adhere to the ethical principles of autonomy, justice, and beneficence. We would also like to remind you of your responsibility to report any violation to participant protections immediately upon discovery. Likewise, we would like to remind you that any alteration to the research proposal as it was approved cannot move forward. Any amendment to the application must be submitted for approval before the project can resume.

We wish you success in your discoveries,

[Signature]

Doctor Chris Chartier
Ashland University
Chair Human Subjects Review Board
APPENDIX EE

HANDBOOK
Handbook on Generalizing Adaptations in Physical Education Used for Students with Cognitive Disabilities to General Education

Kayle Timura & Dr. Carl Walley

Ashland University
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Introduction

This handbook was created based off of the results and insights from a study completed on adaptations for students with cognitive disabilities used in physical education. This handbook breaks down the adaptations into three categories and describes each adaptation. Some data is given about the usage of each adaptation and its effectiveness. An example of using the adaptation in a physical education class is given. An example of using this adaptation for students with cognitive disabilities in a general education class is also given because these adaptations can be effective in general education as well. The goal is for this handbook to be a resource for teachers in both physical education and general education. It provides them with adaptations, examples, resources, technology, and samples. The goal is for all teachers to use more adaptations to differentiate in their classrooms and meet the needs of students with cognitive disabilities more effectively.

Explanation of Organization

The handbook organizes the adaptations into three categories: direct instruction, operational guidelines, and physical/visual. These categories were created based on data from a survey sent to ten physical education teachers. The adaptations are then listed under their category. Each adaptation is then described and data from the research study is given. Then two examples of using the adaptation in two different environments are provided: physical education and general education. A picture that demonstrates the adaptation being used is provided for some of the adaptations. Universal samples of some adaptations are provided, as well, in the hopes that all teachers use these samples in their own class and tweak them to meet the needs of their students. A section for some adaptations describes how the adaptations can be modified with technology. Finally, resources are also provided for the different adaptations.

Direct Instruction

One on One Attention/Paraprofessional/Aide

Description

This adaptation is where a teacher gives a student with a cognitive disability one on one attention to teach them a lesson or skill. Some schools hire a paraprofessional or aide to help the student with a cognitive disability excel in inclusion classes. However, many districts cannot afford to hire a paraprofessional or aide for students in their school with cognitive disabilities. 100% of the teachers surveyed said that they utilize this adaptation. Teacher B was fortunate to have an aide for a few of his students with cognitive disabilities. All of the teachers surveyed worked one on one with a student with a cognitive disability. The physical education teachers showed the students how to complete a skill or explained how to play a game. Physical education teachers ranked this adaptation second to last for ease of use making it one of the most difficult to implement.
However, general education teachers said that this was the most effective adaptation to use for students with cognitive disabilities.

**Example of Use in Physical Education**

The aide/paraprofessional and physical education teachers help keep the students engaged. The aide in physical education Teacher B’s class went with the students with cognitive disabilities throughout the day. In the physical education class the aide prompted the students with cognitive disabilities to stay on task and made sure they were completing the skills to the best of their abilities. This helped keep the students engaged and on task in the inclusion class.

**Example of Use in General Education**

An aide or paraprofessional is also used in general education inclusion classes. They help keep students on task and complete their work. General education teachers also give students with cognitive disabilities in their class one on one attention. This can be effective when teaching these students a new lesson and checking for their understanding.

**Repetition of rules/skills for students with cognitive disabilities to assure understanding**

**Description**

This adaptation involves teachers repeating rules or other instructions multiple times for students with cognitive disabilities. Many teachers commented on the survey how the repetition of rules and skills helps all students, not just students with cognitive disabilities. This adaptation is used by 100% of the physical education teachers we surveyed. Physical education and general education teachers ranked this adaptation as the third most effective adaptation. General education teachers said that this adaptation is the number one most likely to use adaptation in their classroom.

**Example of Use in Physical Education**

The physical education teachers were seen repeating instructions throughout the class often. This repetition helped the students with cognitive disabilities not miss any steps in the instructions. Also, the other students without disabilities benefit by not missing any of the information given as well.

**Example of Use in General Education**

General education teachers are encouraged to use this adaptation as well because it is not only beneficial for students with cognitive disabilities but students without disabilities. Repeating instructions and directions in the classroom will help all students
understand the task they are being asked to complete. However, it is important to utilize wait time in order to allow students to process the information before repeating it again.

**Detailed Modeling by Teacher or Paraprofessional/Aide**

**Description**

Teachers can model activities or skills for students with cognitive disabilities. This helps demonstrate to students what exactly they should be doing. Teachers can break down the steps in a complex skill or lesson for students to understand better. Out of the physical education teachers surveyed, 80% of them said they used modeling by a teacher of paraprofessional/aide. Physical education teachers said that this adaptation was the most effective adaptation and easiest to implement for students with cognitive disabilities. General education teachers said this adaptation was the second most likely to use.

**Example of Use in Physical Education**

As an example, teacher C modeled how to shoot a basketball for a student with a cognitive disability. This helped break down the steps needed to successfully shoot a basketball. The student could visually see what they were supposed to be doing with their arms and legs to shoot a basketball.

**Example of Use in General Education**

General education teachers can effectively utilize modeling in inclusion classes as well. Modeling for students with cognitive disabilities how to solve a math problem or read for context clues can help them understand the task required. Breaking down the steps and showing the students visual examples helps them to have a better understanding of the task.

**Technology Adaptation**

Physical education teachers A and B use iPads in their classes. They video tape other students completing a task and then show the students with cognitive disabilities the video. This is a form of modeling for the student. The teachers can also find videos online to demonstrate skills. This technology can be used in general education classes as well. There are many videos online that can model how to complete different math problems, etc. Teachers can also record themselves modeling how to complete the task. Then they should make this available online for students with cognitive disabilities to review at home if they need help completing homework. These videos should be available to all students to promote universal design in your classroom because it will benefit all students.
Peer Modeling/Teaching

Peer modeling was used by 80% of the physical education teachers surveyed. Teachers B and C were observed using peer modeling in their class. Peers can model skills and activities for students with cognitive disabilities. They have someone that can guide them through class and answer any questions they have. As observed in Teacher B’s class, sometimes students respond to their peers better than the teachers. The peer model in his class had a higher success rate of getting the student with a cognitive disability involved than the teacher. General education teachers said this adaptation is the third most likely to use for students with cognitive disabilities.

Example of Use in Physical Education

Teacher C used peer modeling to help a student with a cognitive disability master shooting a basketball. The student would watch their peer model complete the skill. The peer would then explain each step to shoot a basketball. The peer would help the student
place her hands in the correct position and encourage them to shoot. The peer model was there to remind the student of what to do to successfully shoot a basketball.

**Example of Use in General Education**

During partner reading, one peer can scaffold and model to another student with a cognitive disability. The students work together to read an assigned text. The peer model demonstrates fluency and assists the student when they come across words they do not know. The peer model demonstrates proper fluency that the student with a cognitive disability can imitate.

**Technology Adaptation**

Teachers can record peers completing a task or skill on an iPad. They can then show this video to the student with a cognitive disability. The video of the peer serves as a model to the student and they can then watch it as many times as they need or pause it at specific points. This helps break down the task for students so they can understand it better.
Resources

- http://nrcgt.uconn.edu/underachievement_study/self-efficacy/se_section10/

Hand Over Hand

Description

This adaptation involves physical contact. The teacher controls the student’s hand motions. The teacher places their hands over the student’s hands to help them complete a movement. This helps the student gain muscle memory of the movement. The teacher must be careful not to exert too much force. About 70% of the physical education teachers surveyed use this adaptation. The general education teachers said that this adaptation is the second least effective adaptation and the least likely to use.

Example of Use in Physical Education

The teacher places the student’s hand in a gooseneck shape to demonstrate how to shoot a basketball correctly. The teacher then guides the student’s hand through the motion of shooting the basketball. This commits the motion to muscle memory and helps the student understand what is being asked of her.

Example of Use in General Education

The students are cutting out shapes from pieces of paper using scissors. The teacher places the students fingers on the scissors to demonstrate how to correctly hold the scissors. Then the teacher puts her hands over the students and carefully moves them in the motion to make the scissors cut. This commits the muscle memory of how to cut paper using scissors properly for the student.
Out of the ten physical education teachers surveyed, six of them use written directions. Written directions serve as a reminder and reference for students on what they should be doing or what they should do next when they finish a task. These can be used for the whole class, group, or individualized for a student. This provides the student with some independence. Physical education teachers said this was overall the least effective adaptation.

**Example of Use in Physical Education**

A student with a cognitive disability is given a list of directions to complete the stretches for the day. These directions state what the student should do first, second,
third, etc. This gives the student reminders of what to do next and gives them independence in the inclusion class.

**Example of Use in General Education**

A teacher gives a student with a cognitive disability a list of written directions to remind the student what to do when completing their work. The list tells the student to put their name and date on the paper. It reminds them to work quietly and that they can ask their partner for help. These simple prompts allow the student to complete what is asked of them independently.

**Technology Adaptation**

If the directions can be beneficial for all students in the class then the teacher can use a projector to project the directions so everyone can see them. If the directions are for an individual a tablet can be used. The tablet can then read aloud the directions to the student through headphones.

**Sample**

|Written Directions|

1. Write your name at the top right hand of the page

2. Write the date at the top left hand of the page

3. Get out a scrap piece of paper to do your work on

4. Begin with question number one

5. Quietly ask your partner any questions you might have

**Resources**

- [http://www.educationworld.com/a_lesson/03/lp319-02.shtml](http://www.educationworld.com/a_lesson/03/lp319-02.shtml)
Learning Stations

Description

Learning stations are used by 60% of the physical education teachers in the survey. Learning stations are different areas where students work on different tasks simultaneously. They then rotate to the different stations. Learning stations allow teachers to differentiate lessons and concepts. General education teachers said this was the third least likely to use adaptation.

Example of Use in Physical Education

Different stations can be set up around the room. There is a sign and picture or directions at the stations telling students what they are doing at the station. The teacher explains what students are expected to do at each station. Each station requires the students to work on a different yoga pose. The students are then split into groups and go to their first station. After a certain amount of time the students must switch stations.

Example of Use in General Education

A science teacher can set up different stations to explore the different kinds of rocks. Each station can be a different type of rock. At each station there are samples of rocks, pictures, descriptions, etc. of the different types of rocks. The students are split into groups and sent to each station. They have specific tasks to complete at each station and after a certain amount of time the students rotate stations.

Technology Adaptation

At the different stations, iPads can be set up for students to watch videos, explore websites on a concept or topic, use apps about the concept/topic, etc. Technology can enhance students’ engagement in the different stations. A projector can project a timer with how much time the students have left till they rotate to the next station. Learning stations also provide a unique opportunity for teachers to combine adaptations. Student aides can model at each station. Task cards can be provided at each station. Teachers can project directions at the different stations. Visual boundaries can be used at different stations.

Resources

- https://www.elementarypeteacher.com/using-stations-in-your-pe-class/
Shortened Activity Times

Description

Only 40% of the physical education teachers surveyed utilize shortened activity times in their classes. Shortening activity times help keep students engaged. Students who are struggling with the activity will not get as frustrated or feel failure if they are not struggling for a long time period. Students who are more advanced and excelling at the activity will not get bored because they will not be completing the same thing over and over for an extended period of time. Shortening activity times allows teachers to easily differentiate. Physical education and general education teachers said this was the second easiest adaptation to implement.

Example of Use in Physical Education

The students in the physical education class are learning to juggle. The teacher has them spread around the gym and practice juggling with scarves. The physical education teacher observes a student with a cognitive disability struggling and a few other students struggling to juggle. She observes the students beginning to become frustrated. The teacher also observes a few students who mastered the task within the first minute and are beginning to socialize. She decides after about ten minutes to move on to a new activity to prevent any behavioral problems.

Example of Use in General Education

A language arts teacher is having her students do some silent reading. She observes them reading and some of her struggling readers who have cognitive disabilities are no longer looking at their book but around the room. They have already been reading for twenty minutes and these students were on task for the first fifteen minutes. She decides to end the silent reading and move on to the next activity. She shortens the activity because reading frustrated these students so they gave up after trying for some time.

Visual Boundaries

Description

Physical education teachers 60% of the time use visual boundaries. Cones and jump ropes can easily be set up to show students where the boundaries are. They can keep students from going outside of the cones, going into the cones, be a safe zone, etc. These give a visual reminder for students about where to go or where not to go. Many students with cognitive disabilities need this reminder of where things stop or start and the visual cue helps them remember. These visual boundaries also help other students without disabilities remember. General education teachers said this activity was the third least effective and least likely to use.
Example of Use in Physical Education

A physical education teacher is setting up a game of capture the flag. He puts cones across the centerline so students know that this splits the field in half. Then he lays jump ropes in circles around the field as safe zones for students to run into. When the class comes, he explains to the students what the cones and jump ropes are for.

Example of Use in General Education

General education teachers can also use visual boundaries in their class. They might use dots for where each student should sit on the carpet. The student can decorate their dot and put their name on it to make it their own. When students are taking tests, teachers may have them prop up their folders to make sure no one else can copy their work. These visual boundaries keep students from being able to look around.

Extrinsic Rewards

Description

The physical education teachers 60% of the time used extrinsic rewards. This means that the reward for doing something is tangible or physical. It is important that
teachers know what will motivate the student with a cognitive disability. If the reward is something a student could care less about then there is no point in offering it. Physical education teachers said this adaptation is the third least effective. General education teachers said this was the least effective adaptation and the second least likely to use.

Example of Use in Physical Education

Something as simple as praise can be an extrinsic reward for students with cognitive disabilities. The physical education teacher and peers of the student cheer for her and give her high fives after she participates in an activity. This is a reward for the student and motivates her to participate more. Some physical education teachers have class wide extrinsic rewards. When students master a skill perfectly they get a gold medal. When they almost have the skill they get a silver medal and so on. It is suggested that teachers differentiate the requirements to get a reward for students with cognitive disabilities. For example, it could be meeting a benchmark on their IEP instead of mastering a skill perfectly because for some students this may never happen.

Example of Use in General Education

In general education classes, teachers often create an extrinsic reward systems for students and often times the whole class. Many create a type of money system where they earn so much fake money and then they can cash it in for rewards like candy, pencils, etc. This can be motivating for some students. Sometimes students with cognitive disabilities need more individualized rewards to motivate them. Often sticker charts are motivating and after a set amount of stickers the students receive a reward that is motivating to them such as more computer time. This is a good visual for students with cognitive disabilities because they can see themselves working towards their goal.

Resources

- https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/

Start and Stop Cues

Description

Start and stop cues are used 60% of the time by physical education teachers. Start and stop cues are a cue given to a student with a cognitive disability to start an activity or end an activity. These cues are often used for the whole class because they are beneficial for general education students as well.

Example of Use in Physical Education

Physical education teachers often use a whistle or clickers as a stop and start cue. The teacher will blow the whistle to indicate for the students to start a game. The physical
education teacher will then blow the whistle again to have students stop playing or to pause and listen for directions.

**Example of Use in General Education**

General education teachers use stop and start cues in their classes as well. Often a teacher will clap three times and the students who heard will echo the three claps. Then they will clap twice and a majority of the class has caught on by now and they also stop what they are doing and echo the two claps. By the time the teacher claps once typically the whole class has stopped what they are doing and echoes the one clap. These claps indicate to the students it is time to stop what they are doing and listen.

**Technology Adaptation**

Teachers can set up a timer on a projector so that it counts down and when the time is up a buzzer goes off. This indicates to the students it is time to stop what they are doing. Individual students with cognitive disabilities can be given small kitchen timers or timers on a tablet to tell them when they need to finish the activity.

**Resources**


**Physical/Visual**

**Picture Directions**

**Description**

Picture directions are step-by-step instructions using pictures to depict the instructions instead of words. Picture directions are useful for students with cognitive disabilities that have a low reading level. They are also useful for students who think more concretely and are a visual guide for them. About 50% of the physical education teachers surveyed use picture directions. Physical education and general education teachers said that this adaptation was the second most effective adaptation. Physical education teachers also said this was the third easiest adaptation to implement.

**Example of Use in Physical Education**

To teach a student with a cognitive disability to hit a baseball, some physical education teachers use picture directions. Step one shows a picture of aiming the bat at the ball. The second direction is a picture of a person swinging and hitting the ball. The third step is a picture of the ball being hit and the fourth step is running to first base.
Example of Use in General Education

Teachers in a general education class can use picture directions to help a student with a cognitive disability put together their reading book for the week. The first step will be a picture of scissors cutting out paper to indicate to the student to cut out the pages of their book. The second step would then be a picture of the pages all being lined up so the student knows to put their pages together. The third step would be a picture of a stapler to indicate to the student to staple the pages of their book together. The final picture will be a picture of a child reading to tell the student to read their book now.

Sample

Resources

Cue Cards

Description

Cue cards are used to remind a student with a cognitive disability what they should be doing. They often incorporate pictures to visually remind students. They can remind students how to complete a task, remind them to stay on task, give them a clue about what they should be doing, indicate a behavior, steps in an activity, etc. Cue cards can be put on a ring and individualized to meet a student’s needs. Out of the physical education teachers surveyed, 50% said they used cue cards. Physical education teachers said this adaptation was the second least effective and third most difficult to implement.

Example of Use in Physical Education

A physical education teacher can show a student with a cognitive disability a cue card that has a picture of a person doing jumping jacks. This will help the student visualize what they should be doing and begin to follow their classmates around them. It provides the student with a visual cue of what a jumping jack is and how to do it.

Example of Use in General Education

General education teachers can show a raise your hand cue card to a student with a cognitive disability who keeps calling out during class. This reminds the student of the proper procedures they should be following. This visual reminder helps them understand the appropriate behavior they should be using.

Sample

<table>
<thead>
<tr>
<th>walking</th>
<th>running</th>
</tr>
</thead>
</table>

**CARDOVASCULAR ENDURANCE**

**MUSCULAR STRENGTH AND ENDURANCE**

**JUMPING JACKS**

**PUSH-UPS**
Resources

- [http://ttacwmblogs.wm.edu/cue-cards-hints-to-help-your-students-succeed/](http://ttacwmblogs.wm.edu/cue-cards-hints-to-help-your-students-succeed/)

**Picture Schedules**

**Description**

Pictures schedules are a series of pictures that indicate to students what order and when certain activities and task should be done. These are often used with students with cognitive disabilities because it gives them a visual guide of what to expect. Only 40% of the physical education teachers use picture schedules.

**Example of Use in Physical Education**

Physical education teachers can create pictures schedules for individual students or the whole class. These schedules depict what they are doing for that class period. For one class period a schedule can have pictures of first walking, then stretching, catching, and finally basketball shooting.

**Example of Use in General Education**

General education teachers can use picture schedules for students with cognitive disabilities. It helps students transition and it gives them predictability. An example of a pictures schedule for general education could have pictures first of homeroom, math, art, lunch, language arts, gym, and finally bus.
Checklists

Checklists are a list of items that are to be completed by the student. Checklists provide students with cognitive disabilities independence. Checklists are used by 40% of the physical education teachers surveyed. General education teachers said this was the fifth most likely to use adaptation.
Example of Use in Physical Education

Physical education teachers can use checklists at different stations listing the tasks the student is supposed to complete there. A physical education teacher uses a checklist for the students with cognitive disabilities at the beginning of class that helps them remember what they should do. The tasks on the checklist are to find their spot and do their breathing exercises, complete locomotors while keeping their hands to their self, throw at the target ten times using the correct form, and respect their friends and do not yell during the activity.

Example of Use in General Education

Students with cognitive disabilities can be given a checklist before they turn in a project or assignment. They can go through the checklist and check off each item they completed or included. They can then see if they have any gaps in the requirements and complete those. It is a good way for these students to double-check themselves.

Sample

| Checklist |

- [ ] Find my spot and complete my breathing exercises
- [ ] Complete my locomotors while keeping my hands to myself
- [ ] Throw at the target ten times while using the correct throwing form
- [ ] Respect my friends and do not yell during the activity

Resources

Task Cards

Description

Out of the physical education teacher surveyed, only 30% said they use task cards. Task cards are written descriptions, which use pictures, of an assignment that indicates how to complete the task. Task cards were the least used adaptation by physical education teachers. Physical education teachers said this is the second most difficult adaptation to implement in their class.

Example of Use in Physical Education

A physical education teacher can use task cards at learning stations to describe the tasks required to students. If a student is attempting to learn to do a forward roll, a teacher can use task cards to help them. Each of the steps needed to complete a forward roll are given in order and pictures are also provided depicting the task.

Example of Use in General Education

In science class, a teacher can give a student with a cognitive disability or all of his students task cards to work on laboratory safety. It asks students to complete different tasks concerning safety. There are also pictures for each task to aid student understanding.

Sample

![Forward Roll Task Card](image)
Resources


Token Boards

Description

Token boards are visual ways for students to track their progress towards a goal. This is a type of extrinsic reward. It was added to the list of adaptations when a physical education teacher suggested it and she explained how she used it in her class. The goal must be motivating for the students and obtainable.

Example of Use in Physical Education

The physical education teacher creates a goal with the student that they are working towards. The goal the student chose was a one on one basketball game with the teacher. The student then must fill up his token board by completing the desired tasks first.

Example of Use in General Education

A student and teacher talk and decide on a reward being extra computer time. The student then must fill up their token board by completing the tasks dictated by the teacher first. When the student completes his board he is then given extra computer time during free time.

Sample

I am working for...
Resources

- [http://autismcircuit.net/tool/token-board](http://autismcircuit.net/tool/token-board)

**Chart of Effective Adaptations for Physical Education Teachers**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modeling by a Teacher/Paraprofessional/Aide</td>
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<td>3</td>
<td>Repetition of rules/skills</td>
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<td>Peer modeling/teaching</td>
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<td>6</td>
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<td>7</td>
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<td>Shortened activity time</td>
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<tr>
<td>10</td>
<td>Hand over hand</td>
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<td>Task cards</td>
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### Chart of Most Likely to Use Adaptations for General Education Teachers

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Author Biography

Kayle Timura was born in Hinckley, Ohio on November 3rd, 1995. She grew up in Hinckley, graduating from Highland High School in 2014. At Ashland University, Kayle is majoring in intervention specialist. She is a member of the Council for Exceptional Children and Collegiate Middle Level Association. She is also an active member of the Ashland University Marching Band and the band service honorary, Kappa Kappa Psi. She is in the Kappa Delta Pi education honorary, Omicron Delta Kappa leadership honorary, and Alpha Lambda Delta. Kayle has been on the Dean’s list for five semesters and received the Education Academic Honors Award for department of Inclusive Services and Exceptional Learners. Upon graduation, Kayle plans to find a job at a local school as an intervention specialist.