USING VIDEO PROMPTING TO TEACH HIGH SCHOOL STUDENTS WITH MODERATE INTELLECTUAL DISABILITIES A VOCATIONAL SKILL WITH A PORTABLE VIDEO DELIVERY SYSTEM EMPLOYING A QUALITATIVE CASE STUDY

by

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Liberty University

A Dissertation Presented in Partial Fulfillment Of the Requirements for the Degree Doctor of Education

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ABSTRACT

VIDEO PROMPTING TO TEACH HIGH SCHOOL STUDENTS WITH MODERATE INTELLECTUAL DISABILITIES A VOCATIONAL SKILL WITH A PORTABLE VIDEO DELIVERY SYSTEM EMPLOYING A QUALITATIVE CASE STUDY

The purpose of this study was to determine the effectiveness of portable video devices in the delivery of video content using video prompting to teach functional life skills to three high school students with moderate intellectual disabilities. The theoretical frameworks of the social learning theory, anchored instruction, and situated cognition show promise as the foundation of the development of specialized curricula to improve students’ functioning in adaptive behavior skills. The study utilized a qualitative case study approach, using a multiple-probe across tasks and a single-subject design to obtain quantitative data as the first data collection strategy for a qualitative case study. Additional data were collected for triangulation, in the form of a parent survey and a student questionnaire. The video content was delivered utilizing an iPod to allow the participants to view the content in a variety of venues, thus increasing the independence of the participants. Data were visually analyzed using graphs of the results obtained from independent completion of a vocational task. Using video prompting with an iPod was found to be effective when it is utilized with other educational methods to reinforce the task presented.

Keywords: Video, Video Prompting, iPod, Moderate Intellectual Disability, Single-subject Design, Qualitative Case Study
Dedication

I would like to dedicate this manuscript to my brother Tom and my mother Stella, the two people who started me on this journey, and to my wife, Janet, for her continued and unending support and love, without which I never would have finished! She has blessed me just like the godly woman in Proverbs 31:10-12 (ESV): “An excellent wife who can find? She is far more precious than jewels. The heart of her husband trusts in her, and he will have no lack of gain. She does him good, and not harm, all the days of her life.”

God has truly blessed me!
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List of Abbreviations

Computer-based Video Instruction (CBVI)
Community Based Instruction (CBI)
Moderate Intellectual Disabilities (MoID)
Speech Generating Device (SGD)
Task Analysis (TA)
Video Modeling (VM)
Video Self-modeling (VSM)
CHAPTER ONE: INTRODUCTION

Background

Students with moderate intellectual disabilities (MoID) can attend public school programs until their 22\textsuperscript{nd} birthday according to federal law (Individuals with Disabilities Education Improvement Act [IDEIA], 2004). Their curriculum is modified to meet their unique individual needs, and it concentrates on vocational skills, life skills and self-help skills that give them the tools to become successful members of our society. These students usually work in the community several times a week as part of the public school program, gaining valuable vocational, social and life skills experience. As they continue in a post-secondary program before they graduate from public school, the number of hours that they work in the community is usually increased to prepare them for their future endeavors.

The traditional pedagogical model, in which a teacher lectures to a class, usually does not work with students with MoID; they are two to three standard deviations below what is considered to be the normal range of intelligence, which is typically considered to range from 90 to 110 on the intelligence quotient (IQ) scale (de la Jara, n.d.). For these students, who generally have IQs in the range of 35-40 to 50-55 (Thomas, 1996), an individual, hands-on, concrete and repetitive approach to teaching is necessary for them to be successful in their daily educational and vocational tasks (Keller, 2007). Teaching students with MoID often requires teachers to provide opportunities for multiple attempts to perform tasks on a daily basis and to utilize systematic instruction in the venues in which the tasks are actually performed. The students’ curriculum is modified to meet their unique individual needs; it concentrates on functional academics, vocational skills, life skills and self-help skills that present them with the opportunity to become successful members of our society.
Transition

Congress has recognized that many special education students, including those with MoID, have had little success as they have attempted to transition from their public school experiences to gainful employment (National Council on Disability, 2000). Bureau of Labor (2011) statistics indicate that only 20.8% of people with disabilities are employed, and that, of these, only one-third are employed on a full-time basis (2010). By the time these students are 16 years old, a transition plan is developed as part of their Individual Education Program (IEP); each student’s plan takes into account the unique circumstances within the family of the student with a disability and the family’s desires for the educational program (IDEIA, 2004). The school district attempts to glean information from students and their parents that will allow it to provide instruction in the skills that will assist students to attain their maximum potential before they leave the public school setting. Once students have graduated or aged out of the public school special education system, they must find assistance with job placement on their own; hopefully, they will have developed an arsenal of job skills that they can utilize to gain meaningful employment, even if it is only on a part-time basis or in a volunteer capacity.

The Individuals with Disabilities Education Act (IDEA) was reauthorized in 1997. Its focus was the assurance that children with disabilities would be able to avail themselves of a free and appropriate public education (FAPE) that would recognize their singular needs and prepare them for future employment and for living on their own (Etscheidt, 2006). With this legislation, transition became the driving force in the IEP process. It is the primary area of note that determines the direction of the individual program and the focus for each student with a disability.
Once students have transitioned into the mainstream of society and have completed their public school education, the bulk of services usually must be procured by their parents or guardians, or by the persons with disabilities themselves. At times, students or their parents are able to find job coaches and avail themselves of the coaches’ services while on job sites. These services can be difficult to obtain, however, because of the cost involved and the limited funds that are available from individual states (“Employment Issues,” 2011). Assistance, including job coaching, can be obtained from state agencies, but these services are usually limited due to the number of people who require services, and they vary depending upon the state in which the individual is domiciled. Services to individuals with intellectual disabilities vary widely from state to state, depending upon the manner in which each state appropriates its money, particularly, the money earmarked for community-based services (Simpson, 2010). Even when a student is able to procure the services of a job coach, these services are usually limited and will not continue indefinitely. The current economic climate has exacerbated this issue; more than half of the states were forced to spend less per student during the 2012-2013 school year, compared to the previous school year (“Education Funding,” 2012).

The desire is for students with MoID to be as independent as possible within the constraints under which they live on a daily basis. This is underscored by the students’ ability to interact socially, behave appropriately, communicate effectively, and work cooperatively with their peers and supervisors. Many of these adaptive skills are necessary for a successful transition into the community setting, and most of the projects that have been successful for the acquisition of adaptive skills and their generalization to the community are those that have been implemented in the community environment (Langone & Burton, 1987). It is hoped that the use of video for high school-age students with MoID can provide a potential tool that this group of
people can take with them as they transition into life beyond public school. Video, in its various forms, has the potential to provide the tools of support to young people with intellectual disabilities in multiple environments and to assist them to act of their own volition. The use of a portable video device may also enhance the abilities of those who have completed their educational programs and are looking for jobs in the workforce. Its use could assist a person with MoID to function at an acceptable level while on a job site.

One goal of special education professionals, when they are working with students with MoID, is the development of self-determination in their students’ many daily activities. The capacity of individuals to be able to choose their activities is enhanced when they have the capability to perform many tasks. Reliance upon others, whether they are parents, relatives, friends or teachers, reduces individuals’ feelings of self-worth and forces them to continue the cycle of relying upon the assistance of others to complete tasks. The ability to act appropriately in a social situation or to perform typical adaptive behavior skills is directly related to a more positive level of self-determination for students with MoID (National Gateway to Self Determination [NGSD], 2012).

Providing technology to students with MoID that can assist them in the independent completion of tasks can put students on an equal footing with others who have the capacity to perform at an independent level. Technology such as this can give free choice to people with developmental disabilities and allow them to control their environment in the same manner as most people, leading to a higher level of self-determination. Research has also shown that a higher level of self-determination predicts a higher quality of life for the student with MoID, as well as a higher level of employment and higher wages (NGSD, 2012). This research study will address this situation and will provide a vehicle or a tool for the use of individuals with MoID,
i.e., an opportunity to continue the kind of training they received while in a public school program, which will provide them with an easier transition into a post-secondary vocational scenario.

**NCLB and IDEA**

My personal experience provides a typical example of the logistical problems that permeate the education of those with MoID. The aforementioned students require a highly modified curriculum based on their individual needs and ability levels. When these students reach the secondary level, the primary thrust of their educational program has been one of a vocational nature, to train them to become self-sufficient to the maximum extent possible. In the vocational and life skills spheres, attaining proficiency entails extensive practice at multiple sites. In addition, it is essential for this group of students to work on the many underlying skills that students in the general population often take for granted and that are essential for success as independent adults.

In recent years, the emphasis, in the curriculum for students with disabilities, has shifted toward the provision of access to the general education curriculum. The No Child Left Behind Act (NCLB) (2002) has emphasized the need for schools to provide greater access to and participation in the general education curriculum. On the other hand, one of the stated purposes of IDEIA (2004) is to prepare students to meet their singular needs and to lay the groundwork for vocational opportunities and for living on an independent basis. In addition, the recent trend toward high-stakes testing that was introduced by NCLB has had further impact upon the delivery of curriculum for students with MoID (Ayres, Lowrey, Douglas, & Sievers, 2011.)

Programs for students with MoID are facing an increasing number of obstacles to the provision of instruction that will adequately meet their needs in the public school setting.
Although school systems are required by law to offer programs that will meet the distinct requirements of this segment of the population, and in most cases, are doing so, the logistical problems that are present when these young men and women are educated in a home-school setting often present unique challenges to the special education provider. The addition of high-stakes testing for students with moderate and severe intellectual disabilities, which is necessary to satisfy the requirements of NCLB (AAMR, 2003), is forcing school districts to reassess the manner in which these students are taught.

**Economics and Community-based Instruction**

Students that are in the moderate or severe range of intellectual disability respond positively to community-based instruction (CBI), as it offers them an opportunity to work and learn in settings that are similar to those in which they are likely to be when they complete their public school education. Students with MoID often require teaching methods that are different from those usually utilized with students in the general education environment. Each of these students falls under the auspices of special education and has an IEP that has been developed by a committee of people, including the student, parents and the school professionals who are involved with the student’s educational program. This team of people convenes at least annually to determine the direction that the student’s education will take. Current progress is reported and the parents, the student, therapists (if necessary), administrators and teachers work together to express the direction that they would like the student’s education to take.

Public schools often offer CBI as a part of the curriculum that is available to these students. Teachers go out into the local community and develop work sites to which their students are able to avail themselves during the course of the typical school day. In an ideal world, students who are at the high school level go out into the community between three and
five days a week, for one to three hours a day, to work at community job sites. For a multitude of reasons, however, students are often not able to work at community-based sites on a continuing basis (Morrow & Bates, 1987; Wissick, Gardner, & Langone, 1999). The cost of fuel for school buses has led many districts to reassess their community-based instruction policies, and often, the amount of time available to students has been reduced due to state budget cuts (Oliff & Leachman, 2011). In addition, the classroom teacher may spend an inordinate amount of time in the process of the procurement and development of community job sites. Adequate support from district level vocational personnel is occasionally lacking, and teachers are left to fend for themselves in developing job sites. Teachers also must occasionally handle logistical problems that may arise when buses are late in their arrival at the school for pick-up, which then does not leave enough time to engage in the activity.

With rising fuel costs presenting an even greater challenge for school districts in providing these students with opportunities in a community-based setting (Ayres, Langone, & Boon, 2006), it is imperative that other choices be made available to classroom teachers. The current economic atmosphere also hinders school districts and has resulted in cuts to many educational programs across the country (Employment Issues, 2011). Training in the areas of independent living skills, transition, work experience, and various vocational and practical areas of adult living are essential for students’ success (Bruininks, Thurlow, & Ysseldyke, 1992; Ward & Halloran, 1989).

At the present time, students with moderate intellectual disabilities work on vocational, social and life skills in a variety of settings during their school day. Instruction begins in the classroom at school, and then, it continues outside of the classroom in a variety of school settings that simulate, as much as possible, vocational and community settings. The development of life
skills is considered to be essential for students to function successfully and to improve their quality of life after the transition from public school to life in the community (Alwell & Cobb, 2009). It is essential that students be given the opportunity to practice these skills in multiple environments to improve the chances that their learned skills will become generalized to environments beyond the educational environment. Frequent probes of their tasks should be attempted in each of these environments to ensure that the students are successful outside of their training environment (Wolery, Ault, & Doyle, 1992). True evidence-based practice, as required by IDEA (2004), mandates that methodologies must be tested and that proof must be established that they actually benefit students. In the era of high-stakes testing, new methods must be found to provide students with additional opportunities to practice their new skills.

Further, for CBI, students are transported off campus into the community to participate in opportunities to apply and hone their recently acquired skills in a community setting that is as realistic as possible. The use of video simulations can increase the number of opportunities students have to practice the skills in which they are deficient, as video opportunities may be able to supplement their in vivo opportunities. The number of repetitions in which students can engage raises the chances that they will successfully learn the task in question. Furthermore, the use of video increases the possibility that the community vocational site can be brought to the student within the classroom if school district funds intended for bus transportation are cut. It is hoped that, through this research project, video use, through the medium of a small hand-held device, will help to alleviate the time and budgetary concerns resulting from the requirements of federal law and from a shrinking economy.
High-Stakes Testing

Although this group of students has IEPs that direct the educational component of the students’ work areas, recent legislation, such as the No Child Left Behind Act (NCLB) (2002), has directed school districts to provide the general education curriculum to all students, including those with significant cognitive disabilities (The Georgia Alternate Assessment (GAA)) (Georgia Department of Education, n.d.). In Georgia, this is called the Access curriculum, and it is part of the formal testing of students with significant cognitive disabilities during kindergarten, third through eighth grades, and 11th grade. During the elementary, middle and high school years in which the students are assessed, portfolios are developed, with the initial portfolio serving as the baseline and the second indicating progress in the various Access courses. As prescribed by IDEIA of 2004, teachers in Georgia are directed to develop functional curriculum and to present it within the confines of the Access classes, based upon students’ IEP goals and objectives. The ideals set forth in IDEIA of 2004 appear to be at cross-purposes with those of NCLB (Ayres et al., 2011.)

Students in the upper grades are assessed on tasks aligned to content areas in English/Language Arts, Mathematics, Science and Social Studies (Georgia Department of Education, n.d.). These recently added activities have made it increasingly difficult to adequately prepare students with MoID in vocational, life and social skills during their high school years. The length and breadth of their in vivo opportunities has, of necessity, been shortened, to enable them to complete the required coursework to obtain a general education diploma for those with significant cognitive disabilities after they successfully complete the GAA.
The current battle over the appropriate curricular approach for students with significant cognitive disabilities now appears to be centered on a standards-based or general education-type curriculum in lieu of a functional curriculum (Ayres et al., 2011.) IDEIA continues to emphasize the need for students with disabilities to be prepared to be as independent and productive as possible (Ayres et al., 2011). The time spent in addressing the general education curriculum is likely to have an impact upon the ability of students with significant cognitive disabilities to attain an education that will enable them to obtain employment, whether it is paid or on a volunteer basis. Whether such employment is meaningful or appropriate is beyond the scope of this proposal; assuming that this curricular change remains in place, the question is whether methods of implementation can be found to supplement the current approach to curriculum delivery for students with MoID.

**Adaptive Skill Deficits**

In addition to their cognitive deficits, students with MoID also show significant deficits in the area of adaptive behavior that set them apart from their typical peers. While Langone and Burton (1987) had difficulty in finding an all-encompassing definition of the term “adaptive behavior” and utilized the term “independent living skills,” the following definition covers the major areas that are addressed in most IEPs, which are developed annually for special education students:

Adaptive behavior includes the age-appropriate behaviors necessary for people to live independently and to function safely and appropriately in daily life. Adaptive behaviors include real life skills, such as grooming, dressing, safety, safe food handling, obeying school rules, the ability to work, money management, cleaning, making friends, social skills and personal responsibility (Logsdon, 2009, para. 1.)
The philosophy and focus or the direction of the pedagogy of education for students with MoID in the 21st century is one that is rooted in transition: the transition of these students from a high school secondary program to life after public school at age 22. In today’s world, most of the goals and objectives that are included in their IEPs are focused on the primary intention of maximizing students’ ability to transition, to the maximum extent possible, into jobs (whether paid or unpaid), to live in an apartment or at home, and to become contributing members of society. This is because the transition plan, which was introduced as part of the IEP process in the IDEA update of 1997, is now the driving force behind the entire IEP document for all students who are in a special education program (Cohen, 2009). The desire is for students with MoID to be as independent as possible within the constraints under which they live on a daily basis. This is underscored by the students’ ability to interact socially, behave appropriately and communicate effectively with their peers and supervisors. Many of these adaptive skills are necessary for a successful transition into the community setting, and most of the projects that have been successful for the acquisition of adaptive skills and their generalization to the community are those that have been implemented in the community environment (Langone & Burton, 1987).

The author’s personal experience provides a typical example of the logistical problems that permeate the education of those with MoID and SID. The aforementioned students require a highly modified curriculum based on their individual needs and ability levels. When they reach the secondary level, the primary thrust of the educational program is one of a vocational nature to train these students to become self-sufficient to the maximum extent possible. In the vocational sphere, attaining proficiency entails extensive practice at multiple job sites. In addition, it is essential that this group of students work on the many underlying skills that
students in the general population often take for granted and that are essential for success as independent adults. Training in the areas of independent living skills, transition, work experience, and various vocational and practical areas of adult living are essential for their success (Bruininks et al., 1992; Ward & Halloran, 1989).

**Technology and Pedagogy**

Just as the pedagogy for students in the general education population is changing to reflect the technology and culture of the 21st century, the pedagogy and methodology that serve students with MoID also will have to change in lockstep. The 2011 edition of the *NMC Horizon Report* addressed six emerging technologies that are expected to have a significant impact upon the mainstream of educational usage. One of the six technologies that is expected to have a significant impact in the next year is mobile computing (Johnson, Adams, & Haywood, 2011), which indicates that this emerging technology will begin to enter the mainstream of education in the very near future. This research study seeks to find a plausible manner in which to implement a new technology in the education of students with MoID.

The theoretical basis for this study lies in the theory of imitative learning proffered by Bandura (1965). Success, according to this theory, is dependent upon motivational variables, and it is hoped that the use of new technology will serve this purpose. The video medium has been shown to be successful in education over time, as found by Mechling (2005) in her literature review. These factors bode well for a concept known as Anchored Instruction, in which students learn to anchor their past experiences to new concepts presented to them on video (The Cognitive and Technology Group at Vanderbilt [CTGV], 1990). According to the theory of situated cognition, experiences are a function of the activity and contextual environment, and are situated to actual tasks that are being taught (Oliver, 1999). These frameworks appear to have
potential for the development of new methodologies to implement for students with MoID that will better suit their unique learning requirements. This study proposes to utilize these frameworks, along with a new technological delivery system, to provide instruction that is more conducive to success for students with MoID.

A recent review of the current usage of technology, including the Apple iPod®, has shown that it is lacking at the elementary and high school levels (Newman, 2011). Currently, the bulk of the literature is limited to discussions about how to podcast, rather than actual peer-reviewed research studies (Bess, Jackson, Moran, & Newman, 2010). Along with pertinent information regarding the lack of research in this area, the data also have indicated that one of the areas for which there has been almost no research is the special education setting. Additionally, it has been found that the use of an iPod by students with disabilities would increase their “coolness” factor, thus making the use of an iPod desirable for research studies (Taber-Doughty, Patton, & Brennan, 2008).

**Situation to Self**

This research study is qualitative and will use a case study approach. With over 30 years in special education, I am aware that there are limited ways to successfully deliver content to students with MoID. Technology is changing the face of the classroom, while the law is putting greater pressure on educators to deliver more content in a meaningful manner. As a special educator, I am constantly looking for ways to communicate knowledge to my students and to assist them in the acquisition of knowledge and provide them with the experiences that will allow them to develop life skills that will engender a better quality of life.

The paradigm that shapes this research is based on the theory of situated cognition, in which knowledge exists, but not without reliance upon the context of the activity, as well as the
activity itself. In addition, the culture of the locale determines the types of activities that are important and necessary to be learned, thus setting the standard upon which the local school system and teachers act.

I also feel that a Biblical worldview that permeates the entire fabric of one’s philosophy will set the tone for individuals’ attitudes toward their jobs, daily performance and any other endeavors that they undertake. Educators with a Biblical worldview already have a “truth filter” built in to the fabric of their nature. This provides an advantage over others who are beginning to seek out truth as it applies to education, as they have no anchor or filter to assist them in the knowledge acquisition process. In addition, a Biblical worldview is an asset in acknowledging the necessity that the truth of our findings needs to be reported, no matter the cost, which has been a part of my modus operandi during the entirety of this project.

My personal ethical position is that I am a committed follower of Jesus Christ, and I have a personal relationship with Him as my Lord and Savior. All of my actions on a daily basis are done with this in mind. My opinion is that a Christian philosophy of education must begin with the Bible as its core document and central focus, with the purpose of developing a strong foundation in the Christian faith. When the Bible, and therefore, Jesus Christ, is at the center of a person’s belief system, a positive direction is set for all to see. The application of the philosophy of education sets the tone for a person’s actions and expresses the driving force behind the implementation of educational policy and all actions on a daily basis.

Problem Statement

This study attempts to address the problem of the relatively limited number of studies that have addressed the use of portable technology to assist in the instruction of vocational or life skills for students with MoID while they are at a school or community-based job site. Mobile
devices, such as personal data assistants or personal digital assistants (PDAs), are primarily utilized in the research as organizational or memory tools (DePompei et al., 2008; Gillette & DePompei, 2008; Myles, Ferguson, & Hagiwara, 2007), while only one study used a PDA as a mobile device (Chang & Wang, 2010). Articles that addressed the use of iPods® during the mid-2000s were mainly those that discussed learning how the iPod worked, introductory articles and surveys of iPod usage (Bess et al., 2010).

More recently, research involving the use of the iPod® has increased and has begun to address the use of the iPod® as a tool that can be utilized by students with MoID. The iPod has been shown to be a tool that can be utilized by students with MoID in a variety of social settings and for a variety of social uses (Chan, Lambdin, Van Laarhoven, & Johnson, 2013; Hammond, Whatley, Ayres, & Gast, 2010; Kagohara, 2011; Kagohara et al., 2011; Van Laarhoven & Johnson, 2013).

The usage of the iPod® as a tool to assist students with MoID and other disabilities to perform life and functional skills in the classroom and the community is a recent phenomenon, and although there are a number of studies (Cihak, Fahrenkrog, Ayres, & Smith, 2010; Davidson, 2012; Johnson, Blood, Freeman, & Simmons, 2013; Kelley, Test, & Cooke, 2013; Scott, Collins, Knight, & Kleinart, 2013; Van der Meer et al., 2011; Van Laarhoven, Johnson, Van Laarhoven-Myers, Grider, & Grider, 2009), the total number of participants is limited due to the nature of special education research. Additional research will be required to add to the current body of research, as generalization from the results reported may be difficult. It is the intent of this study to add to the current body of research literature.
Purpose Statement

The purpose of this qualitative case study is to determine the learning experiences of the participants, students with MoID, who were instructed via a video on a mobile computing device that was designed to teach a vocational skill at a suburban high school located in the southeastern region of the United States. At this stage of the research, a vocational skill was defined as the completion of a task that students with MoID need to function in a workplace environment of any type.

As mentioned previously, current programs for students with MoID face an increasing number of obstacles to the provision of instruction that will adequately meet the students’ needs in the public school setting. Although school systems are required by law to offer programs that will meet the academic needs of these students, the logistical problems that are present when these young men and women are educated in a home-school setting often present unique challenges to the special education provider. The addition of high-stakes testing for students with moderate and severe intellectual disabilities, which is necessary to satisfy the requirements of NCLB, is forcing school districts to reassess the manner in which they teach students with moderate and severe disabilities and to have higher expectations for these students (U.S. Department of Education, 2010.) In addition, rising fuel costs and an eroding tax base are resulting in even more financial challenges for school districts in providing these students with the necessary opportunities in a community-based setting.

Significance of the Study

This qualitative case study is being undertaken to (a) present teachers of students with MoID with a research-based option for the delivery of vocational skills education while they are at school or community-based job sites and (b) to identify whether the proposed method can be
utilized in additional ways to impact students on a wider scale. Depending upon the success of this research project, this new technology delivery system could be utilized by students and young adults at public schools or community job sites, and further, could continue to be used when they are working and living in the community as adults, after their public school experience has been completed.

Research in this area is also important because video, in its many forms, has the potential to be a valuable tool for teachers as they implement learning programs. Each case study adds to the body of knowledge and helps in the determination of the effectiveness of the methodology (Ayres & Langone, 2007). Ayres and Langone (2007) assert that an evaluation of the video perspective, as well as combinations of methodologies, including video and in vivo opportunities, needs to be completed to determine the best intervention for students in their classrooms.

**Research Questions**

As mentioned previously, high school students with MoID can receive public school services until they turn 22 years old. Because they require a personalized program that stresses a hands-on and detailed approach, which can be easily repeatable (Keller, 2007), strategies that allow for these parameters are invaluable for teachers who work with this group of students. The utilization of technology to deliver curriculum to students with MoID can allow a student with developmental disabilities to be able to complete a task independently, which relieves the work-related stress on the classroom teacher, while increasing the self-reliance of the students, as well as their self-determination (NGSD, 2012), both of which are indicators of a higher quality of life. With these factors in mind, the following questions seemed to be paramount in the acquisition of information from the three participants in the study, to determine whether knowledge of this
technology delivery system could indeed be acquired and utilized by high school students with MoID in the completion of vocational tasks, both now and in the future, when they have completed public high school.

**Research Question 1:** What are the learning experiences of high school students with MoID when presented with video prompting utilizing an iPod for instructional delivery?

**Research Question 2:** What are the perceptions of parents of high school students with MoID regarding their children’s growth, success and quality of life upon having been presented with video prompting using instructional delivery on iPods?

**Research Question 3:** How do high school students with MoID feel about the quality of instruction of video prompting using iPods, and what is their perceived self-efficacy after said instruction?

**Identification of Phenomenon and Variables**

During this project, the qualitative phenomenon I studied was the actual learning experiences of the participants while utilizing an iPod to deliver video prompting to complete a vocational task. I also addressed the attitudes of the parents and the participants upon completion of the vocational task for which they used an iPod. The independent variable in the multiple probe phase of this study was the vodcast or video on an iPod of the vocational task that the participant was requested to perform. A short, one to two minute video clip that details the steps of the task was recorded and uploaded to a mobile video device, i.e., an iPod, which allowed immediate access by the participant. Each of the participants was given training to ensure that they had adequate knowledge of the operation of the portable video device.

The dependent variable in this phase of the study was the participants’ performance on the task analysis (TA) for the functional skill that was chosen. The TA that was utilized was
developed by me to simulate a task that is common for young adults in a day habilitation work program. The TA for the completion of a packaging job is presented in Appendix A.

Assumptions and Limitations

Assumptions

In qualitative case study research, an individual participant or a small group of participants is often of paramount importance to the researcher. It is an opportunity for the researcher to study individuals or a particular bounded system (Merriam, 1998) in depth, to analyze the impact of the intervention and its effectiveness, and to account for individual differences in performance. Single-subject research allows a flexibility that provides the researcher with the opportunity to respond to the differences in the participants in a manner that allows for modification in a timely fashion. As opposed to the traditional quantitative experimental design, in which it is entirely possible that some participants do not benefit from participation in the experiment, the presence of each participant adds to the strength of the results obtained (Gast, 2010). In the qualitative case study research design, it is imperative to provide explicit details to ensure the possibility of replication. Generalizability, in this type of research, depends on the ability of others to replicate the experiment across different tasks, participants and settings. Single-subject research, as a data collection and research technique, has become accepted as a method that can be used by special education teachers, as it fits very well with the individualized programs that are designed for each of the students in these programs.

Limitations

One of the main limitations of this study is the lack of generalizability in the traditional manner of thinking. Because I conducted a bounded study of a new technological curriculum delivery system with three participants, other researchers will need to closely examine the details
of the participants to determine whether the data collected will have relevance for their classrooms. This type of in-depth study of a small group of participants is designed to delve deeply into the case and is not particularly constructed to be generalizable to a larger group of students (Merriam, 1998). The description of this study, including any “conditions involving the baseline or treatment variable” (Gall et al., 2007, p. 431), must be explicit and as detailed as possible for replication to occur in the future. Also, the researcher must strive to achieve stability in the baseline data collected, as the natural occurrences of positive fluctuations may prevent any reasonable conclusions from being drawn because it is difficult to determine the actual causal factor in the study. In the end, the design should provide enough detailed information to allow other researchers to make determinations about the fitness of their situations (Merriam, 1998).

Another potential limitation of the multiple probe phase of this study arises from not extending the baseline measurement of the dependent variable until a baseline level or trend was established. Results can be confounded “due to uncontrolled history, maturation, practice, and/or adaptation variables” (Tawney & Gast, 1984, p. 273). Another potentially problematic issue is the objectivity of the researcher. The nature of a qualitative case study requires that I utilize my knowledge and instincts when making judgments about the data that are collected. On the other hand, however, this also raises a question about my objectivity, which I addressed in my statement about my worldview. I will endeavor to provide all of the data collected as part of this study to the reader (Merriam, 1998).

**Internal Validity**

Random assignment is not used in single-subject research, so other factors must be taken into consideration to provide the necessary controls for internal validity to ensure that the
intervention is responsible for any change in the dependent variable. The intention was that inter-observer agreement and procedural fidelity were to be collected for 30% of the sessions. A measurement of the inter-observer agreement was conducted to ensure that the data I collected were valid for study purposes (Gast, 2010).

Video recordings of the actual treatments provided additional evidence because all of the researchers involved can review a permanent record of the treatment. A secondary researcher reviewed about 30% of the treatments to provide confirmation of the task behavior. With respect to the treatment, the internal validity is enhanced when the “magnitude of the change in the dependent variable is immediate and abrupt” (Gast & Hammond, 2010, p. 248). The participants in the study were familiar with their teachers and other staff members; therefore, it was not anticipated that participants would experience the Hawthorne Effect. The daily collection of data by the teachers and staff ensured that the participants were not viewed as being in a testing situation.

**External Validity**

Typically, to increase its external validity, a research study must be able to be replicated (Horner et al., 2005) with other subjects, in other environments and by other researchers. When addressing the external validity of a single-subject study, selection bias is often the major issue that must be addressed in regard to the study. Because the number of participants in a typical single-subject design fails to reach the level that would allow for the randomization of experimental and control treatment conditions, it is necessary to provide detailed descriptions of the participants, the setting of the research and the process of the selection of the participants in the study (Horner et al., 2005). In addition, it is necessary to delineate the context of the study
and any other factors that may have influenced the behavior of the participants prior to the start of the study and the utilization of the treatment condition (Horner et al., 2005).

An additional reason to utilize at least three participants in a study of this nature is to increase the study’s external validity. The external validity of a study will be enhanced through the extensive identification of the participants, the setting, participants’ behaviors and the materials utilized (Gast & Hammond, 2010). A detailed and precise description of each experimental condition is necessary to allow the replication of effects. Systematically replicating the intervention allows the generalization of its results to additional populations, tasks and settings. This enables the extension of the body of educational literature on VP as an effective intervention to teach students with disabilities.

Social Validity

Social validity refers to “the social significance of target behaviors, the appropriateness of procedures, and the perceived importance of results” (Armstrong et al., 1997, p. 359). Horner et al. (2005) suggest that dependent variables with high social importance enhance the validity of a study. According to Tawney and Gast (1984), the following question must be answered to provide focus to a potential research study: “Is a desired behavior change important in the social environment?” (p. 89). The social validation process is also concerned with whether the results of the treatment improve the life circumstances of the participants and their caregivers (Tawney & Gast, 1984). It is important for me to establish social validity to verify a need for the research study (Wolf, 1978).

For this study, the target behavior for the participants is an activity that adds to their ability to independently complete a vocational task. This type of task was chosen because it is similar in nature to tasks that this group of students may encounter when they begin to work in a
sheltered workshop or a supported employment situation. The ability of students to be self-sufficient in performing simple vocational tasks adds to their feelings of self-worth. These factors are relevant to the social validity of the research project. The procedures utilized in this study were established as those with significance to the field of special education and that answer questions about the appropriateness of the research, its efficiency or the least intrusive method in which to collect the data (Tawney & Gast, 1984).

**Research Plan**

For this study, I proposed utilizing a qualitative case study approach, which included multiple probes across three participants that were designed to collect the initial set of data. The three participants included a 17-year-old male, a 19-year-old female and a 16-year-old female, all having eligibility in the state of Georgia for Moderate Intellectual Disabilities. The utilization of a single-subject research design for this part of the project was appropriate given the number of students and the classroom size for students with MoID. The participants in the study were chosen from a group of students from the two classes that serve students with MoID in the local school in which I teach. The participants were measured on a TA that reflects the steps needed to successfully complete the packaging task independently. A second observer also scored approximately 25% of these tasks for inter-observer reliability. The data that were collected (percentages of independence scores) were graphed to allow a visual analysis of the progress or lack of progress of each student on the TA with the use of the iPod. I also used a 10-statement survey to gather data from the parents or guardians of the three participants to ascertain their feelings toward the experiences of their children during the project. Finally, I met with each of the participants and asked them four simple yes/no-type questions, another question with two
choices for the answer and an open-ended question that was designed to elicit their opinions about the use of an iPod beyond the completion of the project.

Research has shown that the use of video, i.e., a television or a computer, with students who have moderate intellectual disabilities, can be successful (Ayres & Cihak, 2010; Goh & Bambara, 2013; Mechling & Langone, 2000). Video has the capacity to deliver a lesson without deviation, which makes it a truly valuable resource to utilize in a classroom. At the present time, however, there is limited research regarding the use of portable video devices to deliver this content. A determination of the viability of the use of portable media delivery devices is necessary, as participants can easily transport the device for utilization in settings that are not conducive to the use of a TV or a computer.

In addition, I collected survey data from the parents or guardians of the three participants for triangulation purposes. This data was collected using a 10-statement document on which the parents or guardians of the participants had to agree or disagree with statements regarding their children after their use of the iPod to deliver the video of the vocational task. To complete the data collection process, I verbally asked each participant six questions about their experiences utilizing an iPod with a vocational task to obtain their perspectives on the project and their overall preferences regarding its use.

**Definition of Terms**

The following terms are defined here for clarity.

*Moderate intellectual disabilities (MoID)* refers to students with moderate intellectual disabilities with IQs in the range of 40 to 55. These students often have deficits in adaptive behavior skills that prevent them from functioning independently in the community and at vocational job sites.
iPod refers to the mp3 and mp4 player sold by Apple, Inc. Most versions of the iPod from the 3rd generation forward have the ability to deliver both audio and video that can be played back by users.

Computer-based video instruction (CBVI) refers to instruction that uses video to provide vocational instruction to students who utilize a computer in a classroom. In another context, CBVI can also refer to “community-based vocational instruction.”

Community-based instruction (CBI) refers to instruction that is provided to most students who are classified as MoID. It entails taking the students into the community to provide vocational tasks on-site, with transportation provided by the local school district.

Podcast is a digital audio or video file or recording that is usually part of a themed series of programs and can be downloaded from an Internet website to a portable media player or computer.

Vodcast describes a podcast with the addition of video information.

Task analysis (TA) is often developed and used by special education teachers to break down a task into its individual component parts. Once developed, the teacher can readily see where a student is having difficulty in a specific task.

Video modeling (VM) refers to the use of video to teach adaptive (or other) skills in which a person (not the intended learner) performs the target skill for viewing at a later time.

Video self-modeling (VSM) refers to a video intended for students that uses the participant as the model of the task, instead of another student or adult.

Video prompting (VP) refers to a clip of a single step in a task that a participant has the opportunity to perform before going on to the next step in the task. Frequently, steps build on one another and need to be mastered before going on to the next step of the task.
CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

This chapter will examine the relevant literature that addresses the theoretical foundations for this study and that will explain the underpinnings of the methodology of this study. Next, the use of video in the classroom and the community by students with various levels of intellectual disability will be discussed, and the types of devices utilized to deliver video instruction will be investigated. To ascertain an understanding of how video has been utilized in classrooms, a variety of video delivery methods will be reviewed to establish an understanding of its use for students with MoID. Finally, a variety of mobile video delivery systems will be investigated to determine how they have been used in education up to the present time and the appropriateness of their use for the targeted participants in this study.

Conceptual or Theoretical Framework

Social Learning Theory

Bandura (1965) broached the topic of modeled learning in general when he discussed a theory of imitative learning in which success is dependent upon the motivational variables present. This led to the development of his Social Learning Theory, which proposes that an individual can acquire a behavior by watching a task being modeled, instead of by having a direct personal experience with the task. As the student attends to the task that is being performed, the information is secured in his memory and can then be included in the student’s repertoire of tasks. In a discussion of Bandura’s theory, Boeree (2006) asserted that the “bobo doll studies,” in which young children imitated actions that they had just seen of an adult beating on a blow-up doll, were an indication of imitating behaviors that took place before the children were reinforced for those behaviors. Video can also be a component of the retention of the skill,
as video can capture specific items on which to focus and exclude those that are not relevant to task completion (Ayres & Langone, 2008). The “bobo doll” study has been replicated with a variety of the variables changed and has led to the development of the steps of the modeling process to which a participant must attend for learning to occur. While this theory may have negative aspects with regard to violence on TV, in education, it can be a foundation for learning for students, including those with intellectual disabilities.

Bandura’s research on observational learning suggested four stages in the process: attention, retention, motor reproduction and motivation. The attention stage works very well with the use of video, as this technology has the capacity to focus on pertinent areas of instruction and can address individuals’ interests (Mechling & Gustafson, 2008) to capture their attention and proceed with the learning process. Once their interest has been established, the retention of content is necessary to build upon the participants’ skill levels.

The reproduction of the intended skill can thus be a matter of retrieving the video data that focuses on the components of the skill that are desired and repeatedly watching it (Cihak et al., 2010). Young adults with MoID have progressed, for the most part, beyond requiring physical prompting to complete life skills tasks. The images that are being watched must be sufficiently interesting that the participant is willing to repeat the process to ensure the replication of the intended task. For students with MoID, it is also important that they have the physical skills required by the task and that they can imitate and duplicate the actions. Finally, some reason must be provided for the participant to have the desire to continue the replication process and to learn the task. Motivation is the final aspect of this theory; video, along with new technology that has a certain “coolness” factor (Sargent, 2009) can provide an extrinsic motivation for young adults who may lack the intrinsic motivation to learn the task.
independently. The extrinsic motivation that the young adults feel also results in a level of attention to the video that would not have been there without it.

**Anchored Instruction**

Following Bandura’s social learning theory, other educational theories that have been developed in the field of education over approximately the last 20 years address the utilization of video and can be applied to students with intellectual disabilities. These include parts of Anchored Instruction (CTGV, 1990) and situated cognition (Chen, n.d.), in which learners garner knowledge through personal experiences that have meaning to them. The emphasis for these students is on concrete activities that allow them the opportunity to gain hands-on experience to which they can relate from their past experiences. Students with MoID have difficulty with abstract concepts; therefore, it is imperative that the activities in which they participate have a physical or active component, whether it is actual activity or the act of watching themselves perform (Project IDEAL, 2012).

During the past two decades, the concept of anchored instruction has emerged and is beginning to show promise in addressing and solving the aforementioned predicament. Anchored instruction initially referred to the Jasper Series, which was developed originally by John Bransford of the Cognition and Technology Group at Vanderbilt University (CTGV, 1990). This series of video problems was published on videodisc and was designed to give students with learning difficulties something to which they could “anchor” their experiences during the process of solving a problem.

According to Ayres and Langone (2008), the “proponents of situated cognition stressed the need to tie academic concepts to situations that occur in everyday life” (p. 2). The work of Bottge and Hasselbring (1993) brought anchored instruction to students with mild disabilities.
One of the methods used was a videodisc in which the teacher acted as more of a facilitator or coach and directed the participants to glean information from the video presentation. The results indicated that the students who participated in the anchored instruction group had more success than the comparison group in transferring what they had learned to a new problem set.

This type of technology never achieved extensive distribution, however, because the relatively small number of students with disabilities did not lend itself to a profitable business market (Ayres & Langone, 2008). This situation leaves the classroom teacher as the one person who is ultimately responsible for the provision of any anchored educational instruction, if it is to be provided. New methods of content sharing need to be developed for this type of technology to yield meaningful results in special education. The lessons learned from this concept can still be utilized with students with MoID to provide content delivery in a meaningful fashion.

The concept of anchored instruction has broadened in recent years to include the utilization of pictures, photographs, animations and videos (J.L. Langone, personal communication, November 7, 2005) that can be “secured” to students’ experiences and can give them a frame of reference that will make the experience meaningful, and therefore, more interesting. Originally developed for students with mild learning problems in the area of mathematics, the expanded concept of anchored instruction has been extended in recent years to the population of students who have moderate and severe disabilities. The utilization of the expanded definition of anchored instruction with more severely disabled students has included skill areas such as daily living skills, socialization, functional skills, adaptive behavior skills and self-help skills (Bidwell & Rehfeldt, 2004; Norman, Collins, & Schuster, 2001; Shipley-Benamou, Lutzer, & Taubman, 2002).
Students classified as MoID are also placed into simulated situations that require them to model both verbal conversations and physical tasks in both scenarios. Learning by seeing, doing, and then performing, is the basis for every activity that is worked on during the school day (Reynolds, Zupanick, & Dombeck, 2012). Students with MoID require multiple exemplars while they are in the community so that they can successfully generalize their tasks and incorporate them as a part of their experience. The completion of tasks in a meaningful environment or real-world setting helps to anchor these tasks and make them significant in the eyes of the students. Working in the community environment provides them familiarity with the culture and the beginnings of an understanding of how the content is related to their current work site.

**Situated Cognition**

One of the reasons that the aforementioned theoretical frameworks are being considered for students with MoID is that theories such as behaviorism do not allow a linkage between the content to be taught and the context in which it will ultimately be used (Chen, n.d.); further, the teacher is the prime focus of the lesson (Chen, n.d.). It is obvious that the anchored instruction approach to teaching appears to be quite conducive to connect these students to their tasks and their environments. As with situated cognition, anchored instruction suggests that learning is a function of the activity, the environment and the culture, and not just the content that is being delivered. Oliver (1999) argues that learning, as it normally occurs, is a function of the activity, the context and the culture in which it occurs (i.e., in which it is situated). This contrasts with most classroom learning activities, which involve knowledge that is abstract and out of context. Brown, Collins, and Duguid (1989) also describe situated cognition as “a theory of instruction that suggests learning is naturally tied to authentic activity, context, and culture.” It is quite
apparent that anchored instruction and situated cognition are similar in their composition and are theories and frameworks that can help to explain the learning process in students that are intellectually disabled. These theories support community-based instruction and also, at least on the surface, appear to support the utilization of simulated instruction of various types with students with MoID. It is proposed that the use of video for lessons, via a portable device as the delivery system, is ideal to promote the four stages of observational learning proffered by Bandura (1965).

Almost 20 years ago, Kinnaman (1993) speculated that technology’s strength was its ability to create contexts for educational situations. Kinnaman (1993) also asserted that the activities within this context lend themselves to the act of learning, meaning that the content being taught, when situated within a meaningful context, has a powerful effect upon the learning of students. Utilization of new technology, such as an iPod, in a manner that is outside of its original intended use, may provide a potential answer by serving as the delivery vehicle of video lessons for students with MoID. The focus on situated cognition has resulted in part from the problems in generalization and transfer that are typically seen in the education of students with cognitive disabilities (Gersten & Baker, 1998). The use of strategies based on situated cognition or anchored instruction will allow participants to take pieces of a solution, put them together in the correct order and apply them to a relevant task, which will be more meaningful and memorable over a longer period of time.

**Video Use in the Classroom**

Video has successfully been implemented in a variety of classrooms to support and enhance the educational goals of students with intellectual disabilities in recent decades (Alberto, Cihak, & Gama, 2004; Ayres & Langone, 2005; Branham, Collins, Schuster, & Kleinert, 1999;
Cihak & Schrader, 2008; Mechling, 2005; Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Rehfeldt, Dahman, Young, Cherry, & Davis, 2003). The literature has also shown that other disability groups can be aided by the use of video in the classroom. Many students with autism spectrum disorder (ASD) have levels of functioning that are similar to students with MoID, which makes this population of students another group that could potentially benefit from the use of mobile video devices in their daily curriculum.

Over the last two decades, there have been a number of studies that have addressed the use of video in a variety of formats in classrooms that serve students with MoID, as well as students who have been classified as having an ASD. In a variety of studies, students with intellectual disabilities have been provided various self-prompting devices to facilitate the independent completion of social, life and vocational skills tasks. How and whether this technology can be applied to classroom teaching are major questions that have been raised by the research (Ayres & Langone, 2005).

**Video Delivery Methods**

In a review of the literature by Mechling (2005), 24 studies from 1999 to 2003 that utilized a form of video were examined. The findings from this analysis included the identification of six different video procedures that had recently been utilized. Those methods included video feedback, video modeling (VM), video self-modeling (VSM), subjective point-of-view, interactive video prompting and computer-based video instruction (CBVI). Ninety-one percent of the studies that were reviewed found a positive outcome for instructor-based video programs that used one of the six methods mentioned across a range of skills needed by these students; in addition, they indicated that teacher-made programs can be a successful strategy and can provide support for in vivo instruction.
A meta-analysis of 23 single-subject design studies completed by Bellini and Akullian (2007) found that VSM and VM are both effective methods for the delivery of skills training. The participants who were included in the studies ranged in age from early childhood to adolescence, and they had ASD. Target tasks included social, communication, behavioral and functional skills. In these studies, the results indicate that video, as an intervention, shows promise, as video was implemented in a variety of locations, including the community, the home, the school and other locations. Bellini and Akullian (2007) reported that the results indicated that a relatively short time was required for intervention (i.e., the median treatment length of the studies included in the meta-analysis was nine and a half sessions), and they suggested that VM and VSM can be considered evidence-based practice.

Promising results have also been found in studies that utilized multi-media, computer-based instruction for students with MoID. Several studies have found that if CBVI was used often enough, the generalization of the skills that were being taught was promoted (Langone, Shade, Clees, & Day, 1999; Mechling & Cronin, 2006; Mechling & Gast, 2003; Mechling et al., 2003). In other cases, the use of CBVI helped students with MoID to learn their designated tasks (Mechling, Gast, & Langone, 2002; Mechling, Pridgen, & Cronin, 2005) when paired with in vivo training.

**Video Modeling**

Video modeling has also seen similar results and has been paired with other methods to ensure that students with MoID can attain their intended tasks. One study (Branham et al., 1999) used video modeling, along with a classroom simulation and community-based instruction (CBI), to teach life skills to students with MoID. The findings in that study suggested that any combination of methods would be successful in generalizing the results to a community setting.
There were similar findings confirmed by Rehfeldt et al. (2003), in which a combination of video modeling and positive reinforcement were seen as tools to teach simple living skills. Static picture prompts and video modeling have also been effective, along with in vivo training, in teaching life skills (Alberto et al., 2004); this gives further credence to the idea that video, in some form, is an effective tool for use with students with MoID. Taber-Doughty et al. (2008) examined simultaneous VM and delayed VM with three middle school students with MoID. The intent of their study was to have the students independently locate books using the Dewey Decimal System; both procedures were successfully used in this endeavor. The preliminary results also indicated that the method the students preferred actually resulted in greater independence in their completion of these tasks.

**Static Picture Prompting**

Mechling and Gustafson (2009) addressed the use of static picture prompting and video prompting with six young adults with MoID at the high school level. When compared to verbal instructions, both of these procedures increased the correct responses, with the video prompting engendering more independent responses from the participants. The study was replicated with six high school students having ASD (Mechling & Gustafson, 2008) with similar results; the study found that VP resulted in the independent completion of a greater number of tasks for the students.

Mechling and Stephens (2009) found similar results with a group of four young adults with MoID; in their study, video prompts were more efficacious than picture prompts to increase the ability of the participants to perform more complicated cooking tasks that involved multiple steps. While working with two middle school students with autism, Van Laarhoven, Kraus, Karpman, Nizzi, and Valentino (2010) found that video prompts were not only more effective,
but also required fewer external prompts, and it was found to allow the more efficient use of time with regard to material preparation.

In a study to determine whether simulation instruction using video prompts and static picture prompts with middle school students with MoID could be effective for functional skills training, Cihak, Alberto, Taber-Doughty, and Gama (2006) found that they were equally effective. When comparing static picture prompting with video modeling that has been combined with community-based instruction (CBI) in a group of eight MoID students whose ages ranged from 11-15, Alberto et al. (2004) determined that the two methods were equally efficient and effective to teach the use of an ATM machine and a debit card. Finally, in a study that used the combined methods of VM, VM and static photo or picture prompting, and VM and VP, Van Laarhoven and Van Laarhoven-Myers (2006) found that all three of the options were effective in increasing independent responses in three students with MoID whose ages ranged from 17 to 19.

In addition, the VM and static photo choice and the VM choice were deemed to be more efficient to bring the participants to the criterion. Research has shown that the use of static picture prompting has been effective as a method to teach students with ASD and MoID how to improve functional skills, as it only shows information that is pertinent to the actual task itself, and it contains fewer environmental distractions that could divert attention away from the task at hand (Alberto et al., 2004). On the other hand, the use of action video can provide additional motivation for the designated population, as a researcher can anchor the video with items of interest to the participants, providing them with a motivating factor to increase the level of task completion (Mechling & Gustafson, 2008). It appears that more research to address these two
areas is warranted. It was also important for me to take into consideration the participants and their characteristics and areas of disability before deciding which method to use.

**Computer-based Video Instruction (CBVI)**

Another method used to deliver video content to students with disabilities is computer-based video instruction or CBVI. The usage of computers has become ubiquitous in the 21st century classroom, and it has become an easily utilized tool for curricular delivery. The use of a computer for delivery of specialized content allows the teacher to control the exact content, which can be presented in the order desired.

Ayres and Cihak (2010) studied the use of CBVI in learning life skills with three middle school students with intellectual disabilities. The findings indicated that all three students acquired the ability to perform the skills of making a sandwich, using a microwave and setting a table with the CBVI software package. Ayres, Maguire, and McClimon (2009) utilized CBVI to teach elementary students with ASD how to make soup and sandwiches and set a table. Their findings were that the CBVI program was successful, not only in teaching the skills, but also in assisting the students to generalize the results to their environments.

The use of VP embedded within CBVI has also shown promising results. Sigafoos et al. (2005) utilized the procedure to make popcorn with a microwave. Two of three adult men with developmental disabilities were able to reach the desired criterion with VP inside CBVI. The advantages of this type of program include a reduction in the amount of time staff is required to deliver direct services, which allows others with more pressing needs to have more access to the teacher’s expertise. Mechling and Ortega-Hurndon (2007) utilized CBVI with VP to teach multiple step job tasks to three young adults with MoID. The simulated environment created by
the researchers enabled them to generalize the skills to actual job settings in the community that were maintained over time.

CBVI has also been found to be effective when utilizing both VM and VP within a computer-based program to teach functional life skills to students with MoID at the elementary and high school levels (Mechling et al., 2003; Mechling & O’Brien, 2010; Norman et al., 2001). These activities were developed to alleviate the need for in vivo practice, which can be expensive and logistically challenging for the special educator. While these studies only included three participants each, each study found that the use of CBVI with VP and VM enabled the participants to generalize the functional skills tasks they attempted.

Other researchers have addressed the use of CBVI along with different combinations of prompting to deliver functional skills training. Ayres and Langone (2002) utilized VP to demonstrate clips of a cashier interacting with elementary-aged students with MiID and MoID when teaching the dollar more method of purchasing. While all the participants showed improvement in the purchasing strategy, they did not generalize it to the local community. Mechling and Cronin (2006) and Mechling et al. (2005) utilized CBVI with VP, picture prompts and audio prompts to determine if the technique could teach high school students with MoID, and separately, to determine if it could teach those using an augmentative communication device to respond to questions and make an order at a fast food restaurant. In these instances, the students were able to increase their ability to order and respond to questions at selected fast food restaurants. Generalization probes at different stores found that the students required additional verbal or device skills to communicate effectively beyond the limited skills which with they were originally presented. Finally, using CBVI to teach grocery words and community-referenced sight words was found to be successful with MoID students at the middle and high school levels.
(Cuvo & Klatt, 1992; Mechling & Gast, 2002; Mechling & Gast, 2003). In each of these instances, video was used, but was not the main focal point of the methodology; however, it still was proven to be successful to enable students to generalize the reading of store signs and community-referenced sight words to the community.

**Video Prompting**

As stated previously, VP has been utilized within the framework of CBVI to deliver functional skills instruction to students with MoID and ASD and has been relatively successful in enabling students to generalize skills to the community (Ayres & Cihak, 2010; Ayres et al., 2009; Mechling & Ortega-Hurndon, 2007). Delivery of the methodology is based on the utilization of a computer, which relegates the delivery method to a classroom-based situation. While the results appear to be positive, the method is still centered on a fixed location, which prevents the participants from receiving reinforcement while they attempt to complete a task on site.

Studies that involved a comparison of picture prompting to VP were often found in the research. Most of these studies discovered that VP was a more effective method to teach various functional life skills to students with MoID and with ASD (Chang & Wang, 2010; Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Mechling & Stephens, 2009; Van Laarhoven et al., 2010). Cihak et al. (2006) found that both VP and static picture prompting were equally effective and efficient in the delivery of simulation strategies to six middle school students with MoID; thus, they also demonstrated that VP could be an effective delivery method when it is used with students with disabilities.

Zisimopoulos, Sigafos, and Koutromanos (2011) used VP and a constant time delay (CTD) to teach a basic Internet search skill to three elementary-aged students with MoID, so that
they would have the ability to participate, to some extent, in the classroom curriculum. The use of VP has been demonstrated to be a viable alternative for the delivery of functional skills content to students with MoID and ASD. Researchers must look at the participants involved, the skills being taught, the amount of time available and the available resources, to determine whether VP can be utilized in their situations.

**VM and VP**

Studies have also found that the use of VM and VP together can be effective in the delivery of functional skills training to students with disabilities. Norman et al. (2001) used VM to introduce skills to students and used VP to present each of the individual steps of the TA. These two delivery methods were effective in teaching self-help skills to students with MoID. The skills that were taught were also generalized to new instructors, which increased their usefulness. Videotape modeling, which included elements of VP and static picture prompting, was found to be as successful as a classroom simulation and community-based instruction for high school students with MoID (Branham et al., 1999).

When VM and VP were compared, Cannella-Malone et al. (2006) and Cannella-Malone et al. (2011) found that VP was more effective in teaching daily living skills than VM, which they found to be essentially ineffective. These studies extended the work of Le Grice and Blampied (1994), who found video prompting to be successful in teaching students with MoID how to use a computer and a video recorder. These results contradict the findings of D’Ateno, Mangiapanello, and Taylor (2003), who found that video modeling was more efficient in teaching functional skills to students with MoID.

There are additional questions with regard to the use of video modeling, as compared to the use of video prompting, in the presentation of instruction to each of the participants. Several
studies have found that the use of video prompting is more effective than the use of a simple depiction of a model of the intended task alone (Cannella-Malone et al., 2011). The system that utilizes the video prompting method would require additional instruction and would require the participants to have the ability to operate a delivery system unfailingly.

In summary, it is apparent that there are multiple methods to successfully deliver video content to students and adults with MoID. The teacher or researcher must take multiple factors into account to determine which method of video delivery will offer the best opportunity for success, balanced by the amount of work needed to develop the lesson. Continual replication of the various video delivery options will serve to enumerate and clarify the options for the classroom practitioner.

**Video and Other Disabilities**

Video in various forms has also been used successfully with students having autism (Ayres & Langone, 2005); because this group of students often also have intellectual disabilities, and many students who are served in programs for MoID sometimes exhibit ASD-like behaviors, research dealing with them can reveal strategies that could be applied to students who are intellectually disabled. Because no intervention that is designed for use with students with autism is successful with all such students on a consistent basis, it is important for those who teach in the field to keep abreast of new strategies.

Mechling and Gustafson (2008) found that the use of static pictures and video prompting with students with autism effectively increased task performance from baseline data. These results mirrored those of Mechling and Gustafson (2009), who used similar video strategies with students having moderate intellectual disabilities. A similar study by Cihak and Schrader (2008) examined VSM and adult modeling of video to determine whether one was superior to the other.
Both of the strategies were successful in the acquisition and maintenance of vocational skills, and VSM appeared to be the superior strategy for students with ASD. The fact that the teacher involved rated the video strategies as being socially valid for use in schools was also of importance in this study. It is also felt that the use of visuals with students having ASD helps to establish structure in their home and school settings (Meadan, Ostrosky, Triplett, Michna, & Fettig, 2011). Meadan et al. (2011) further asserted that the use of visual task analyses can be utilized as a means of expediting independent task completion for students with ASD.

To apply Bandura’s theory (1965), the subject or model of the video should be addressed to make a determination of whom would be the most effective, attention-getting model to facilitate a student’s attention to a particular video. The determination of the type of model who will be used in a video, i.e., the model who is most likely to be seen as motivational, is an important aspect of the development of a training video, whether the model is an adult, such as a teacher, a student or the participant.

Charlop-Christy, Le, and Freeman (2000) found that VM was more effective than in vivo modeling in the acquisition of tasks for students with ASD. The reason for VM’s effectiveness was theorized to be the potential overstimulation of in vivo modeling; VM focused specifically on those parts of the task that were most relevant to the students. In addition, it was felt that VM increased the motivation of those with ASD and was intrinsically motivating. The feeling was that students with ASD often relate better to objects rather than to people and that VM did not present an expectation of human contact for those with ASD. Finally, the authors felt that VM was more effective due to the inadvertent reinforcement of extraneous behaviors that conflicted with the task at hand.
**Video Delivery Systems**

Recently, the various methods of utilizing video in the classroom that have been mentioned previously in this paper have been delivered to students using a new technology that better suits the student population because they are able to interact with the medium. Due to its size and portability, Apple Computer’s iPod is becoming a delivery method for several types of video modeling strategies that have previously utilized computers and portable DVD players. The iPod was a key component in a study that was aimed at improving the transition of students with ASD in a public school setting (Cihak et al., 2010). In that study, VM was provided for the participants, and it allowed them to transition between classes, which usually is a difficult task for students with ASD. The size of the device allowed the participants to remain inconspicuous while utilizing it.

Usage of the iPod for educational purposes is in its infancy, as the first article that mentioned the use of such a device was published in 2007 in *The New York Times* (Auchincloss & McIntyre, 2008). The use of podcasting in education has taken a variety of forms, as was found in a search of the EBSCOhost database using the following terms: “special education” and “vodcasting;” “podcasting;” “vodcast;” “podcast;” or “iPod.” In this review, which only included peer-reviewed journals from 2006 until 2010, a total of 44 articles were found. Among these articles were a total of four qualitative studies and three quantitative research studies (Bess et al., 2010).

Twenty-four of the articles discussed topics such as “how to podcast,” the history of podcasts, and an overview of podcasts in general. Seven articles were surveys of iPod use, along with one literature review, two anecdotal articles and three articles that were considered to be miscellaneous. The articles found were in the fields of communication or information services,
various performance activities and only one that dealt with athletics and special education. Math was the area that was most notably absent. The articles addressed the following grade levels: three dealt with elementary schools, one dealt with middle and high schools, and 33 articles dealt with college and beyond. The grade levels of the research articles followed a similar ratio, with one study addressing elementary school, one study addressing middle school, and five studies addressing college and beyond (Bess et al., 2010).

Bess et al. (2010) reached certain conclusions from the data collected, most importantly, that quantitative data need to be collected that address the issue of the actual use of iPod or mobile computers with students in a variety of fields and subject areas. They found that the qualitative data that has been collected addressed the factors of “newness” and “coolness,” along with motivation. Three of the survey studies indicated the majority of people use an iPod, not a personal computer, for podcasts, while a review of the literature found an opposite result.

In addition, the panel reached another conclusion (Bess et al., 2010): The time for surveys of use and introductory articles has passed, and serious research should be undertaken to address some of the holes that the review uncovered. Studies appear to be quite prevalent at the college and post-college levels, with podcasts primarily being utilized for lectures and supplemental material. Future research should include the K-12 area, especially in the fields of math and special education, across categories. In addition, certain questions arose, including: the learning style that would most benefit from podcasts; whether the author of the podcast can make a difference; where, specifically, most podcasts are viewed; and whether podcasts are being used with mobile computing devices or stand-alone computers. Finally, they recognized that the present research on the usage of podcasting and mobile computing devices is in its infancy,
which indicates that longitudinal studies need to be planned and executed in order for the field to develop and prosper.

Institutions of higher learning first utilized the iPod to develop podcasts of their class lectures and were instigators in addressing the issues of intellectual property ownership and attendance in courses that utilized the technology (Harkness, 2006). Use of the technology was slower to be introduced into the K-12 area due to financial considerations and the lack of administrative support (Blaisdell, 2006). During the middle of the first decade of the 21st century, the cost of an iPod was $299 (Blaisdell, 2006), making it an expensive option for schools to add, especially as it was still primarily considered to be an entertainment device. Even as late as 2010, the literature mentioned the fact that iPods and smartphones were still seen to be a problem by educators, were often prohibited in classrooms (Blaisdell, 2006; “Technology counts,” 2010) and were perceived by many as a distracting tool used to cheat (Fabiano, 2009). Others had concerns about keeping track of the new technology, keeping it charged and that it might be improperly utilized in class (Bannister, 2010), each of which adds additional burdens to an already busy classroom environment.

As with any emerging technology, funding has to be found for the technology, as well as for its integration into the curriculum. Once funding is established, the next major hurdle is the content that will be transferred onto the iPod. Early uses beyond entertainment included the tapping of its recording capabilities for students who were learning new languages (Billings & Mathison, 2012; Shohel & Power, 2010; THE Innovators, 2006). Additionally, music educators realized the value of the technology when they were able to load their entire music libraries onto their iPods with room to spare. Considering the physical media that have been used by music educators in the past, the ability to have their libraries available for use immediately and to carry
them in their pockets is important. Administrative tasks were also made easier, such as scheduling and the ability to provide accompaniment to students who were auditioning (Cullen, 2011). Relatively mundane tasks, performed on an iPod, were now perceived as “cool” and the use of an iPod provided motivation to complete them (Billings & Mathison, 2012; Cullen, 2011), a factor that reinforces Bandura’s social learning theory with respect to developing attention and being motivated to complete a task.

**Personal Digital Assistants**

While most of the educational research addressed in the literature in this review focused on the iPod® and iPad®, there are other mobile computing devices being utilized in education that should be examined. Personal digital assistants, or personal data assistants (PDAs) are, in essence, hand-held computing devices with a variety of capabilities; they sometimes include video, depending upon the specific device. In the research, it was found that most of the relevant studies have used PDAs as organizational tools for students with a variety of disabilities. Myles et al. (2007) found that a PDA was instrumental in assisting a student with Asperger syndrome in the recording of his homework assignments and in the specific details of each assignment. In a study of 35 students across a wide range of ages (6-20), Gillette and DePompei (2008) found that PDAs enhanced the memory skills and the organizational skills of students with intellectual disabilities and with traumatic brain injuries. Once again, the PDA was utilized as a tool to remind students to complete tasks and to assist them in the organization of schoolwork.

DePompei et al. (2008) addressed practical applications for PDAs and smartphones at three different sites with 106 participants with intellectual disabilities and/or traumatic brain injuries. Again, it was determined that the PDA was a tool that enhanced participant memory and increased independence with organizational skills. Finally, one study that dealt with
individuals with intellectual disabilities utilized the PDA with proprietary GPS (Global Positioning System) software to determine whether the device would be able to assist the adult participants in the completion of a local community bus route. It was found that the device was successful in assisting almost three quarters of the experimental group in exiting the bus at the correct stop. Those in the control group fared much worse, as only 8% of those not using the device were able to exit the bus at the appropriate stop.

One study was found that addressed the merits of VP versus picture prompting in wayfinding using PDAs (Chang & Wang, 2010). The researchers used a proprietary Bluetooth system to provide the participants with picture-based or video-based directions when they arrived at a certain point in their journey, precisely at the point needed to continue. The participants using VP were found to have a 25-28% better performance than the participants utilizing picture prompts. Mechling, Gast, and Seid (2010) evaluated a personal digital assistant (PDA) as a self-prompting device in a study of three high school students with MoID. They found that a PDA was an effective device to prompt students with MoID to complete multi-step recipes using video, auditory and picture prompting. Van Laarhoven et al. (2007) found that a Pocket PC that delivered video strategies for students with developmental disabilities increased their independent responses at work sites. Also, the number of prompts necessary for task completion was reduced to a minimum level.

From the research, it appears that the functions of the PDAs do not facilitate easy video viewing, and the size of the PDAs, while quite a bit smaller than a personal computer or laptop, is still significantly larger than an iPod®, which makes it less desirable for use in a mobile situation. The lack of research that has addressed the use of PDAs caused them to be a less desirable choice for utilization in this project.
Educators have also started to embrace the Apple iPad® as a means to deliver video content to their students. Functionally, the iPad® is equivalent to the iPod, in that it can deliver self-made content and entertainment software to users. The main difference between the two tools is their size, as the iPad® is much larger than the iPod, and it less likely to be utilized in a vocational setting, although it is still considered to be a mobile technology by some in the education field (Rodriguez, Strnadova, & Cumming, 2013). The size of the iPod enhances its mobility, and thus, its use as a tool to assist those with disabilities outside of their classrooms.

The iPad® is beginning to be utilized as a content delivery tool for students with disabilities in its new role as a classroom-based device. Miller, Krockover, and Doughty (2013) used the iPad® to deliver science curriculum to students with MoID and found that it held the students’ interest three times longer than a traditional content delivery lesson. In their review of the literature, Rodriguez et al. (2013) found high levels of parental support for the use of iPads® in special education classrooms, which was based on the opportunity for independence that the device provided to the students. In addition, their findings suggest that there were feelings that the iPad® had a positive impact upon student behavior and their ability to be self-determined.

Another study addressed the issue of healthy eating habits for children and adolescents with intellectual disabilities that used what the researchers termed a “serious game” (Rodriguez Isasi, Lopez Basterretxea, Mendez Zorrilla, & Garcia Zapirain, 2013) on an iPad. Working with student participants who had Down syndrome, the researchers used their proprietary game to deliver content about eating healthily. Anecdotal evidence indicated that the participants enjoyed playing the game on the iPad, and the researchers noted that the participants affirmed that they would play the game again. The study did not mention whether the participants
improved their health issues using the game, although the authors stated that their intention was to “instil[sic] positive values at the same time [that] the users play and have fun” (p.170).

The utilization of the iPad as a recreational device has also been a focus in the literature. Chan, Lambdin, Graham, Fragale, and Davis (2014) used a picture-based activity with photos and graphics to prompt the participants in the completion of the TA to perform the target behavior, which was playing a simple game on the iPad. All three of the adults with mild intellectual disabilities were successful in learning how to play the game using the activity schedule provided. The participants in the study were able to maintain this skill beyond the scope of the study, i.e., it provided the participants with a skill that could be utilized at a later date.

As with the iPod, the researchers used a commercially available iPad® that is mass-produced as a means for providing students with disabilities access to the general education curriculum as required by law. For school districts that are economically challenged, options such as iPods or iPads® make more sense than many of the personalized assistive technology devices that are often suggested to support students with disabilities as required by the Individuals with Disabilities Education Act (2004). Although much planning is required to determine how to use the devices correctly and the software that should be purchased, the iPad® has the potential to be a multi-purpose tool that increases the educational programs of special education students, while also being positively accepted by their parents (Rodriguez et al., 2013).

Three higher functioning young adults in their early to mid-20s with developmental disabilities and ASD showed promise when using an iPad® to assist them with life-coaching, job coaching and therapy as reported by Hill, Belcher, Brigman, Renner, and Stephens (2013). Using specialized software apps, the trio lessened or eliminated their need for job coaching and
increased their ability to take prescribed medications, which allowed them to function to the best of their abilities. This enabled the group to increase their independence, self-reliance and ability to retain employment. Hill et al. (2013) concluded that the iPad had the potential to be both an immediate and long-term solution during a time when budgetary concerns are affecting service delivery.

Another early study (Burton, Anderson, Prater, & Dyches, 2013) found positive results using VSM and an iPad in the delivery of math skills curriculum for four middle school-aged boys with autism and/or mild intellectual disabilities. All of these students spent part of their time in special education self-contained classrooms, some in resource classrooms, with limited time in the general education setting. The results obtained suggest that the iPad can be used to expand the knowledge base of students with developmental disabilities and autism with regard to the core curriculum in the general education setting.

The aforementioned research indicates that the utilization of the iPad in educational settings is currently in the early stages of deployment. The research studies that were located primarily utilize the iPad as a content delivery device and a leisure and entertainment delivery system. While the iPad has the same capabilities as the iPod with regard to the functionality of the device, the size of the iPad may be the primary reason that the tool is typically used as described above. Although mobile, the iPod has a definite size advantage over the iPad in the delivery of VP or VM to students with disabilities when they are in school, community and vocational settings.

Using the iPod

One of my concerns regarding this study was whether the participants could utilize an iPod independently during the course of the project. The independent utilization of an iPod is
essential for the desired benefit to be attained, i.e., for the students to be capable of completing tasks using only the iPod, thus allowing the classroom teacher to work with students who require more in-depth assistance. Recent research results appear to indicate that students with MoID have the ability to use an iPod to perform a variety of tasks, including watching entertainment videos (Hammond et al., 2010; Kagohara, 2011), listening to music (Chan, Lambdin, Van Laarhovin, & Johnson, 2013; Hammond et al., 2010; Kagohara et al., 2011; Van Laarhovin & Johnson, 2013) and taking digital pictures (Chan et al., 2013; Hammond et al., 2010). All of these tasks are age-appropriate leisure activities and are skills that are desirable to learn as the role of technology in our lives expands (Kagohara et al., 2011).

An additional advantage that accompanies the use of an iPod is the “coolness” factor that is experienced by students with disabilities when they use it (Taber-Doughty et al., 2008). The novelty of this type of technology has been shown to be the determining factor in the choice of a device to complete tasks. The use of video in classrooms for students with disabilities has advanced from a technology that was tied to the classroom or the school, due to the size of the equipment, to a technology that can deliver instantaneous video on any work site, at any time. O’Connor and Fitzpatrick (2010) also found that the use of technology, in their case, a camcorder, gave participants with intellectual disabilities the opportunity to be more social and gave them the opportunity to draw others into social interactions and to initiate conversations.

A recent study by Cihak et al. (2010) took advantage of some of the positive aspects of the device for students having ASD. The size of the tool is such that it is easily used, regardless of where a student may be during the school day. In addition, the student can view the task in question on multiple occasions, or anytime additional reminders are needed to complete the task. Previous studies that had shown success in utilizing VM had been constrained by the size of the
equipment and the need for students to view the video in a specific setting (Cihak et al., 2010). Recent technology has removed this obstacle.

Another preliminary study (Cihak et al., 2010) addressed the use of an iPod and VM to ease the transitions of students with ASD in their daily movements between classes and their activities during the school day. Participant transitioning became more independent with the use of the iPod and reverted upon withdrawal of the iPod intervention. An iPod was also utilized as a prompting device for a 17-year-old student with MoID, and it allowed him to increase his independent responses on three tasks that were completed in a work setting in the community (Van Laarhoven et al., 2009). The student in the study also reduced his dependence upon adults and his peers while on a job site.

Skill acquisition appeared to be fairly rapid, which indicated that the activities involved were motivational in nature. Kagohara (2011) felt that this was the case because the participants were able to choose their own stimuli to be viewed on the iPod. In addition, Kagohara (2011) observed that difficulties exhibited by some of the participants were due to the distractibility that was inherent in the participants’ make-up. It is also noteworthy that some studies (Chan et al., 2013; Kagohara, 2011) required the use of additional prompting measures to ensure success by the participants.

Among the concerns raised in the research for the teachers and others who lead projects using mobile computing devices such as iPods® are their ability to keep track of the devices, and to keep the devices charged and ready for use (Bannister, 2010). In addition, the development of content for delivery is a major time-consuming task that needs to be considered by the educators that undertake this type of activity. This type of project is accompanied by the task of keeping
both the students who are utilizing the technology, as well as those who are not, on task with content that addresses their unique needs.

In a study using collaborative action research, Davidson (2012) utilized videos made specifically for five participants in their early to mid-20s with intellectual disabilities. The findings were that the participants needed structured support to enable them to utilize the technology appropriately, and that the “coolness” factor was not a sufficient motivator to prompt the participants to utilize the technology beyond listening to music and watching entertainment videos. In addition, the researcher found that the lack of structure created a situation in which the participants had difficulty dealing with some of the more technological problems that can arise when using the Internet (Davidson, 2012).

Utilization of an iPod® to deliver functional skills content has been relatively limited to date. Scott et al. (2013) utilized VM along with audio prompting on an iPod® to teach three young adults aged 18-20 how to withdraw money from an automated teller machine (ATM). The participants also were able to maintain the new skill five weeks after the study was complete. Additionally, the participants were moderately successful in applying their new skill to a novel ATM.

In another study, Johnson et al. (2013) evaluated the use of an iPod® to deliver food preparation content to two 17-year-old boys with autism and MoID. The boys were able to use an iPod® with VP to learn how to make a fruit smoothie and to use a microwave to cook macaroni and cheese, and a frozen pizza. The utilization of the iPod® along with VP allowed the classroom teacher to withdraw her presence from the participants and use her time to meet the needs of the other students in her classroom.
In addressing another life skill, pedestrian navigation skills, Kelley et al. (2013) found that the iPod®, along with VP of static photographs, successfully prompted four adults with developmental disabilities in their early 20s to navigate a college campus successfully. The four participants were able to follow routes on the campus in which they were trained without the researcher being present. More importantly, three of the four participants were found to be able to travel a novel route on an independent basis, utilizing only the iPod® to maneuver, while the fourth participant required only one prompt to complete this task.

With regard to communication, the iPod® appears to be able to fill the role of a speech-generating device (SGD) for students who have difficulty with speech output. One study addressed the use of the iPod® as a SGD, but the participant involved appeared to have motor control issues, and therefore, the participant had difficulty pressing the correct icon with enough force to activate it (Kagohara et al., 2010). A behavioral intervention was applied that allowed the participant to become successful in the utilization of the iPod® as a SGD. Van der Meer et al. (2011) also examined the use of the iPod® as an SGD. In this study, two of the three participants were able to request snacks or toys by touching iconic symbols on the iPod®. These two studies indicate that the iPod® is a multi-functional tool that can be utilized in many areas of special education.

In a recent review of the literature, Kagohara et al. (2013) found 15 studies that examined the uses of iPods®, the iPod nano®, the iPod Touch®, the iPhone® or iPads® “for the purpose of teaching a new skill, increasing or decreasing a behavior or response, and/or increasing/improving one or more academic, social, communication, and/or other adaptive behaviors” (p. 148). These 15 studies addressed the academic, communication, employment, leisure and transitioning domains. The authors concluded that, although the total number of
participants in the studies reviewed was less than 50, it was apparent that iPods® were indeed a viable tool that can be used with students with developmental disabilities. In addition to the gaps in the domains and specific skill areas that were found by the authors, it was noted that there was a 23 year age range in these studies and that there were gaps in the kinds of skills that were taught. This indicates that the research regarding the utilization of these devices is at an early stage, which provides educators with many opportunities for further study.

Although the use of such technology requires quite a bit of teacher planning time, once groups of teachers begin to develop and share their libraries of videos, students with MoID will definitely be the beneficiaries.

**Summary**

At the present time, the research has demonstrated that video is a viable method to teach or provide training regarding life, social and vocational skills to students with MoID and ASD. Additional research is needed to further clarify how the various methods that are utilized to deliver video content affect the results that have been exhibited by different populations. Theoretically, there are several avenues of support that provide the foundation necessary to undergird the use of video with students with intellectual disabilities.

In the body of literature, it has been found that the research that addresses the use of portable computing devices, such as the Apple iPod®, Apple iPad® and PDAs from various manufacturers, is in its early stages, with only a relatively small number of studies being reported. From the literature, it is apparent that the device of choice for video content delivery is the Apple iPod®, as it can deliver hours of video content in a package that allows easy access both on and away from a school campus. While PDAs have been shown to be effective with
organizational and memory tasks, their limited video capabilities restrict them from a study of this nature.

Although video has shown to be effective as a means of content delivery, with respect to the manner in which it is delivered, such as the use of VM or VP, there has not yet been adequate research to determine whether one method is definitively superior to another. This study was intended to determine whether the use of a mobile device using video prompting can be a viable tool when students are at job sites by themselves, as a substitute for in vivo training, or if it can assist with various adaptive skills in which students may be deficient.

If successful, this melding of video prompting with an emerging technology would allow young men and women with moderate intellectual disabilities the opportunity for increased independence and improved self-esteem. School districts would also benefit economically, as it could be utilized as a substitute for in vivo training, which is currently becoming more and more expensive. Finally, this project aims to contribute an addition to the body of research with the goal of providing evidence-based practices for students with disabilities.
CHAPTER THREE: METHODOLOGY

The purpose of this study was to determine whether VP can be utilized with an emerging delivery technology, such as an Apple iPod®, to enable students with MoID to acquire functional life skills on an independent basis, utilizing a case study approach. This chapter will describe the intended group of participants for this study, the setting in which the study took place, and the methodology that was used. It was the intent of this research to add to the body of knowledge in this field and to increase the opportunities for evidence-based practices that are available to educators in the field of special education.

In this study, I utilized a TA that determined whether a participant followed the proper procedures to complete a packaging task. I developed this TA to assess whether the target participants would be able to follow a pre-determined sequence of tasks to completion using VP on an iPod. The participants had to follow the TA in order to be judged as being successful.

It was assumed that this TA was a reliable tool to judge whether the participants were able to complete a task successfully. Completion of the steps in the TA determined the percentage that was graphed (see Figure 1). One other observer collected data at the same time that the data was collected by the primary researcher. The percentage of agreement score was originally intended to be at least 90%, with the desired target score being 95% agreement or better.

Another concern was whether the use of iPods with video capabilities could act as an effective substitute job coach for students having MoID while they are working in a community or school setting. I wanted to determine whether video prompts delivered by an iPod were a viable alternative to teach and train students with MoID in vocational skills. The successful implementation of this technology has the potential to provide a substitute or virtual job coach
for community or school-based vocational skills programs for students with MoID. The utilization of this technology could help alleviate the pressure that these programs have been under as a result of legislative and economic factors. In addition, the use of iPods has been shown to have the potential to alleviate student dependence upon school staff, thus freeing them to assist in areas of greater need. Finally, the use of the iPod has engendered independence in students with MoID, thus increasing their self-esteem and feelings of self-worth and self-determination.

While using a case study approach, I decided to incorporate single-subject quantitative data to assist me to evaluate whether the use of video on an iPod enabled participants to stay on task to completion in a shorter time span and with improved results, including an increase in independence, than if the participants completed the task without the device. A single-subject quantitative design was the preferable choice for this section of the project, as research involving students with low incidence disabilities is difficult to execute on a larger scale due to the inherent nature of the self-contained classroom size. Because the emphasis of special education is on the individual, the use of single-subject research allows for the evaluation of effects, while also sustaining the methodological precision that is unavailable in the use of group experimental designs (Murphy & Bryan, 1980). Additionally, the inherent nature of self-contained special education classrooms makes it unlikely that a group of 30 willing participants could be obtained for a quantitative study of this nature, which makes a single-subject design a better method to obtain this information.

**Research Design**

This project incorporated a qualitative case study design, utilizing data collected in three separate phases. The use of a qualitative case study was appropriate for this study, as the use of
an iPod to deliver VP to students with MoID fits within the definition utilized by Merriam (1998), who described a case “as a thing, a single entity, a unit around which there are boundaries” (p. 27). Stake (1995, as cited by Creswell, 2003) describes the case study as an in-depth study of “a program, an event, an activity, a process, or one or more individuals . . . using a variety of data collection procedures over a sustained period of time” (p.15).

Extending the concept of using a variety of data collection procedures for qualitative case research, Merriam (1998) proffers the notion that there are no distinct or specific methods for data collection or analysis. Although some methods are utilized more often, “[a]ny and all methods of gathering data, from testing to interviewing, can be used in [a] case study” (Merriam, 1998, p. 28). The ultimate goal of this research project is to unearth the cogent circumstances that describe the phenomenon of the iPod as a delivery system for high school students with MoID (Merriam, 1998). With these factors in mind, I developed a multi-faceted approach to collect the data for this project. The three phases of the project served to include multiple sources of data, thus establishing the concept of triangulation, which increases the internal validity and reliability of the study (Merriam, 1998). The following sections describe, in detail, the three phases of this project.

**Research Questions**

**Research Question 1:** *What are the learning experiences of high school students with MoID when presented with video prompting, utilizing an iPod, for instructional delivery?*

Each participant was measured on task completion, both without a video prompt and with a video prompt. A comparison of the data collected was performed using a graph containing a visual representation of the data. Behavioral change was evaluated using the appropriate single-
subject research design. The graph efficiently organized the data and provides an appropriate visual representation of it (Gast, 2010).

This question was answered based upon the visual representation of the data collected. Simply put, a participant who is able to complete a task with fewer external prompts, using the video as a guide, was deemed to have successfully utilized the instrument as a substitute job coach.

Video of a packaging task was taken, edited for content and then uploaded to an Apple iPod. The participants in the study were assessed before utilization of the video to establish a baseline, and also, after it, to determine whether the video that was utilized made a difference in their performance of the tasks. According to Gast (2010),

Graphic representation of data provides you with an efficient, compact, and detailed summary of performance. It communicates to readers (a) sequence of experimental conditions and phases; (b) time spent in each condition; (c) independent and dependent variables; (d) experimental design; and (e) relations between variables. Therefore, it is not surprising that applied researchers rely heavily on graphic displays (p. 167).

Each participant attempted the task without the use of the iPod with video to establish a baseline. I marked each step of the TA as completed independently or with the appropriate level of assistance provided. The secondary researcher provided inter-rater reliability by taking sample data from a minimum of 20% of the tasks that were completed by the participants. Additionally, the task analysis for each task attempted was videotaped to allow an independent confirmation of independent task completion, which increased the reliability of the results to the
maximum extent possible. An experimental control can be demonstrated when the trend line of the target behavior improves during the intervention (Tawney & Gast, 1984).

**Research Question 2:** What are the perceptions of parents of high school students with MoID regarding their children’s growth, success and quality of life upon having been presented with video prompting instructional delivery on iPods?

There are a myriad of attitudes toward the utilization of technology in the general public, which are often determined by personal experiences with such items. One would assume, from an educator’s perspective, that the parents or guardians of students with MoID would accept the use of any kind of tool that could be successful for their child. It was necessary, however, to confirm the attitudes of this group of people, as they have a major influence upon the participants of the study. These data were collected through surveys and personal discussions with the families of the participants.

**Research Question 3:** How do high school students with MoID feel about the quality of instruction provided by video prompting using iPods, and what is their perceived self-efficacy after said instruction?

All of the participants were given a written set of questions, which were read to them. Each of the participants was given the unrestricted opportunity to expound further on the questions. This data is important, as it deals directly with the participants in the project; their attitudes toward the technology will determine whether they can be successful with it over time.

**Participants**

The participants in this study were high school students described as being eligible to be served in the state of Georgia in the category of MoID in a county school district in suburban Atlanta. The participants included three current students who were in my high school class,
which was located within the aforementioned local school district. Those who were chosen for participation were students who had the option to participate in one of the local school district’s two vocational training programs, which are available to students with MoID after four years of high school education. These participants were determined through the use of purposive sampling, in which the type of population about which a researcher has decided to obtain a better understanding and a more complete insight determines the sample (Merriam, 1998). In this particular study, the information about the typical student I see in my classroom was the most valuable to me and determined the students chosen.

I identified three participants for inclusion in the study. These three participants were all given pseudonyms to protect their identities. The first participant in this study was Mike, a 17-year-old male who had a score of 34 on the General Concept Ability (GCA) section of the Differential Ability Scale-Second Edition (DAS-2), which placed him in the deficient range of scores. Mike received an index score of 52 on the Reynolds Intellectual Screening Test (RIST), which is in the deficient range of scores. He also received a 53 on the General Adaptive Composite (GAC) score of the Adaptive Behavior Assessment System-Second Edition (ABAS-II), which also placed him in the deficient range. Mike has current eligibility from the state of Georgia for placement in the MoID program. Mike tends to be sloppy and is easily distracted when he is doing seatwork in the classroom, and he functions better when he is attempting a physical task of some kind at school or at a community work site. His parents have reported that he enjoys cutting the grass and working in the yard at home, which confirms his actions while at school. Mike has a relatively firm grasp of informational signs in the workplace and community, and he knows approximately 150 words of the 400 Edmark Functional Word Series Program.
The second participant in this study was Carla, a 19-year-old female, who is currently eligible in the state of Georgia for MoID. Carla scored a 40 on the full scale Stanford-Binet: 5th edition test of cognitive ability, which placed her in the moderately impaired or delayed range. Carla received GAC scores of 44 and 65 on the ABAS-II, which indicated that she functions in the extremely low classification with regard to her adaptive skills. Carla is a very social young lady, who also has some articulation problems that affect her ability to communicate clearly with those who are not familiar with her. Carla is still able to convey her meaning to others, as she is persistent in her attempts to communicate. Carla has scoliosis and other health issues, including an implanted pacemaker and a diagnosis of DiGeorge Syndrome. Relatively speaking, she has shown great progress in learning sight words using the Edmark Functional Word Series Program. In a little over a year and a half, she has progressed from being a virtual non-reader to knowing almost 100 sight words.

The third participant was Julia, a 16-year-old female who is currently eligible in state of Georgia for MoID. Julia obtained a full-scale score of 40 on the Stanford-Binet: 5th edition, which placed her in the moderately delayed range of intelligence. Julia also received a full-scale score of 43 on the Comprehensive Test of Nonverbal Intelligence-Second Edition (CTONI-2), which placed her in the very poor category of performance. She also scored a 52 on the GAC portion of the ABAS-II, which indicated that her adaptive behavior falls in the extremely low area of functioning. Julia functions at approximately a kindergarten level in all areas of functional academics, and she is occasionally defiant and refuses to complete tasks that are as simple as going to the bus to return home. This attitude has affected her ability to become ready for any kind of academic or skills work in class or in a community setting. She appears to like
her peers, although she has limited verbal interactions with them. Mike and Carla have been in my class for three years, while Julia is currently in her second year in my classroom.

A letter of permission for parents and of assent for the participants was drafted and sent to the parents and guardians of the pool of participants. Three additional participants were identified and were in place in the event that one of the three principal participants needed to be replaced during the study. These three potential participants also have state of Georgia eligibility for the MoID program and are currently being served at the high school level.

The prerequisites included giving each participant the opportunity to learn how to use the iPod in a group situation several weeks before the research project began. The participants were shown how to turn the iPod on and how to go to the video portion of the device to access the appropriate training video. All three participants demonstrated their ability to operate the device before the research project started. Each of the participants was trained on the iPod using a TA for making popcorn in a microwave. This was done to provide the participants with a working knowledge of the iPod in a situation similar to the experimental procedure. All of the participants demonstrated their ability to follow the video prompts provided on the iPod to complete the task of making popcorn in a microwave by independently turning on the device and going directly to the video area and choosing the popcorn video. The emphasis of the training was on following the correct procedures to complete the TA using the iPod.

The training took place in my classroom under my supervision. All three participants were trained together to ensure that each participant was given the same training as the other participants. Other potential participants also received training at this time, in the event that one of the participants needed to drop out of the project. The remainder of my caseload completed individual class activities with the assigned paraprofessionals in the classroom and in other areas
of the school. The research project took place during the second and seventh class periods of the school day, as these periods coincided with the typical vocational schedule of the self-contained special education students at this particular high school.

The academic prerequisites for inclusion in this section of the research project included the ability to recognize and name colors and to be able to count to a minimum of 10. Another prerequisite included having eligibility in the state of Georgia for MoID. In addition, I wanted to have three participants, with both genders being represented. Two students in my classroom have eligibilities for other disabilities, precluding them from the study. Of the four remaining students who qualified for the study, one student was classified as being homeless by the school district. This factor led to questions about whether she would remain at the school to be able to complete the project. One student is nonverbal and also did not meet the academic prerequisites for the project. The project task was completed in my classroom, although the home living center at the high school was a room that was available as a backup for project delivery.

Setting

The utilization of my classroom as the primary delivery area for the project provided the participants with a location with which they were already familiar and comfortable. The classroom was located in a high school in the suburbs of a large city in the Southeastern United States. The high school has over 3,400 students, and is known for its excellence in fine arts, athletics and academics. The local city demographics show that 61% of the population are White and 39% of the population are Black, Hispanic and Asian, indicating a diverse community.

The classroom was not a completely quiet and distraction-free setting, however. Other potential locations were available, such as the school home living center, but the home living center was not available for use during my class schedule on a consistent basis, as other teachers
in the special education department also utilize this room. The area utilized for the project was the back third of my classroom; a mobile divider was used to restrict the sight lines of the participants and to prevent the non-participants from watching their fellow students engage in the task.

The students who did not participate in the project were often in the classroom working on IEP-related goals and objectives while the project was in progress. The noise level from these activities occasionally rose to a distractible level and may have had an influence upon the progress of the participants involved. One of the non-participating students in the classroom has Prader-Willi Syndrome and requires a one-on-one paraprofessional to fulfill the student’s IEP goals and objectives and to keep the student on task. Occasionally, the behaviors exhibited by this student can be very distracting and can interfere with the overall educational atmosphere in the classroom.

In addition, my classroom shares a bathroom facility with the classroom next door. Access to this bathroom is determined by the use of a stop sign system, which requires students to place a stop sign outside of both doors of the bathroom when it is occupied. This system allows students to walk into each other’s rooms, which can occasionally cause a disturbance, depending upon the behaviors of the students involved.

I also experienced occasional interruptions when intervention sessions were being held, as teachers and students occasionally walked into my classroom during project sessions. I then requested and received permission from the school special education department chairperson to utilize a “Testing in Session/Do Not Disturb” sign, which was placed on the door of the classroom during project sessions. This was generally successful, but was still occasionally ignored by some adults and students.
Procedures

After the proposal was approved, I submitted the Institutional Review Board (IRB) packet. I also made an application to my local school district principal. Upon IRB and school district approval, a letter soliciting participation was sent out to the three families chosen for their perceived ability to cooperate with me and for their diversity in age, ability and gender. I identified three additional potential participants in the event that approval by the parents and/or student assent was not received from the initial group of three participants or if the potential participants scored over 30% independent in the baseline data collection. Additional participants were available if any of the initial participants in the pool were unable to participate in the project. One participant that started the project during the spring of the previous year graduated and was replaced at the beginning of the new school year by Julia.

In addition, the original task that was approved by the IRB was making a peanut butter and jelly sandwich. It was felt that the use of this task would have given the participants too many options in the completion of the sandwich, and thus, would have confused the participants if a step that they had completed was determined as incorrect, even though it led to the successful completion of the task. The goal was to develop an arbitrary task that most resembled a potential task that a person with MoID might see in a sheltered workshop environment. The change in project protocol was made and also approved by the IRB.

Researcher’s Role

My role in this study was as a researcher and also as a classroom teacher. I have had Carla and Mike in my classroom for four years, and Julia for two. Communication between the participants’ families and me occurred, at a minimum, on a weekly basis, and frequently, more often. The type of communication was also often at a deeper level, as I was occasionally called
into discussions with the families about personal situations and long-term life goals for their children, both during formal IEP meetings and at more informal meetings. These factors assured me that I would have a close relationship with the families throughout the course of the study and afforded me a level of confidence and support that teachers in the general education population will likely never earn.

As the teacher of the participants, I was responsible for developing their educational goals and objectives in light of the transition plan that had been developed for each of them collectively by their families and the educational professionals on the IEP committee. Having this knowledge and insight about their skills and abilities, and their hopes and desires for the future, I was in a unique position to develop this project with the hope of incorporating it into the classroom routine at some point.

Although I had a very good relationship with each of the participants before the study commenced, I was still their teacher, and this forced me, on occasion, to also assume the role of disciplinarian. This additional role had the potential to interfere with the project at some level, but did not appear to interfere with it. The dual roles of teacher/disciplinarian and researcher placed me at a slight disadvantage in this regard, but I feel that the advantage of the relationship that had been built through the years together was more valuable over the long term.

Another advantage that resulted from being the classroom teacher was the ability to have control over the utilization of the setting and not being required to request permission from another teacher or to impose upon another classroom to complete the project. Classroom space is limited at this particular school, and although the special education home living center was identified as a backup classroom for this project, it was often not available due to its use by other special education teachers and students.
In addition, being the classroom teacher provided me with the best perspective with regard to the times during the school day to implement the project. Had I been forced to implement the project at another school location, my ability to deliver the task to the participants twice during the school day would have been limited. As the classroom teacher, I also was able to maintain better control of the students in the classroom who were not a part of the project. I was also able to take advantage of my relationship with the two paraprofessionals in my classroom, which would not have been possible had the project been located elsewhere.

Finally, as a veteran teacher in my 12th year at the project location, I had developed a strong relationship with the special education department chairperson and the local school administration. These relationships afforded me the freedom to complete the project with their complete confidence in my ability to separate my dual roles of teacher and researcher.

**Data Collection**

The collection of multiple sources of data in a research project, or triangulation, is done to ensure reliability and internal validity in a qualitative research project (Merriam, 1998). In addition, ensuring numerous data sources also serves to establish a more complete understanding of the comprehensive data package (Merriam, 1998). The inclusion of multiple data collection procedures, each with their own unique strengths and limitations, can help establish a stronger conclusion if they all point to a single outcome (Maxwell, 2013). Moreover, the collection of data from multiple sources allows a researcher to gain information about various facets of the phenomena being studied (Maxwell, 2013), expanding the conclusions reached, and thus, generating a superior addition to the body of educational knowledge.

In this research project, the use of triangulation was exhibited in the use of multiple probe observations, parent surveys and a student questionnaire. I chose to begin the project with the
multiple probe observations, as the experience of using the iPods was necessary for the subsequent completion of the parent surveys and student questionnaires. The multiple probe observations were started at the beginning of the school year in August, and they continued until their completion three months later. Once these data were collected, I sent home the surveys to the parents or guardians of the participants and conducted the questionnaires with each of the participants. Because the latter two phases of data collection addressed reactions and feelings toward the use of the iPod, they had to be completed subsequent to the multiple probe observations. The survey from one of the guardians had to be sent three times, and all data were finally collected by the middle of January, which amounted to approximately five and a half months for all data collection.

**Multiple Probe Observations**

**Task description.**

I purchased the various components of the task from a local hardware chain, along with the black plastic boxes used to hold the contents. The task itself was determined by using skills that all of the participants would have in their repertoires, such as counting to ten, color recognition, the ability to put bolts on screws, and being able to open and close a plastic box. To keep the scoring as simple as possible, I decided that the task would have 10 discreet steps that must be performed. Each of the steps was determined by simulating a possible order that could be received by a sheltered workshop in a manufacturing company. Each section of the plastic box was color-coded to allow the participant to easily see where the various parts should be placed during the intervention. To vary the steps of the task, one step was added in which the participants had to put five bolts and screws together within a 45 second time period.
The packaging task consisted of 10 discrete steps (see Appendix A). The participant first had to open the box and then count out five screws and five bolts and place them on the counter. The fourth step required the participant to put the bolts on the screws and place them in the blue section inside the black plastic box. Next, they were required to count out five plastic caps and place them inside the box, in the yellow section. Step six required the participants to count out 10 yellow caps and place them in the green section of the box. In step seven, the participants had to count out five white anchors and place them in the red space inside the box. The next step required the participants to count out 10 self-tapping screws and place them in the purple section of the plastic box. Step nine had the participants count out 10 maroon beads and place them in the orange space inside the black plastic box. Finally, each participant had to close the two latches on the black plastic box to complete the task.

During the research project, the participants were reinforced for correct procedures using the classroom reward system that has been in place in my classroom for over 10 years. The teacher distributed “bonus bucks” when the students achieved all or part of a task or tasks upon which they were working. These bucks were then applied to each student’s “checkbook” account two to three times a week. Each Friday, the students were given an opportunity to shop in the classroom store, using the bucks they had accumulated. The store has various items for sale, including pens and pencils, books and magazines, and vouchers for computer time that can be used during leisure opportunities.

All three participants were given five “bonus bucks” each time they completed a session, whether or not they were successful at the intervention. Upon attaining the criterion level, each participant received an additional 25 bonus bucks for each instance that they attained this level. For additional motivation, each participant was offered a reward that was specific to the
individual in an effort to make the reward more appealing. As their special reward, Mike, Carla and Julia all requested the use of the classroom computer to be used during free-time activities, which they received upon completion of the task at the criterion. All three of the participants then utilized the “bonus bucks” that they had earned during the project to purchase items from the school store each Friday over the course of the project.

Data points were plotted on a graph and then connected by lines, with breaks in the lines indicating a change in the type of treatment. The mean level of the target phase can be analyzed along with the slope trend of the data points. Each phase was analyzed with its adjacent phase, which provided more meaningful data. Another recommendation by Gall et al. (2007) is to determine the percentage of non-overlapping data. Criticism of this type of data analysis is prevalent, due to the easy manipulation or the emphasizing or masking of the collected data. Researchers occasionally use inferential statistics, including the t-test, to analyze the data in lieu of a visual analysis of single-subject design data (Gast, 2010); however, visual analysis is the main method of data analysis used in the majority of this type of study. In essence, an immediate change in the dependent variable should occur upon the introduction of the independent variable to show the experimental control (Gast, 2010). If the change in the dependent variable was not immediate, then the experimental control should come under scrutiny.

**Data collection materials.**

I felt that the utilization of an emerging technology that primarily has been classified as a leisure or entertainment device had the potential to be a solution to the problem. The emergence of the Apple Company’s iPod® as a ubiquitous instrument of entertainment has been well documented, as a recent Google search of the term “ubiquitous iPod” returned approximately two million hits (2012). Its use in the classroom has created something of an issue for educators,
and it has previously been viewed as an item that causes classroom commotion, rather than as an educational tool (Egan, 2007; Henderson, 2007; Murph, 2007). In this study, it was felt that the use of an iPod with video added (also known as a vodcast) could possibly have the unexpected benefit of providing some educators with a reason to rethink their biases toward the technology.

For this project, a video of the project task was made using a Canon VIXIA HF R32 Full HD 51x Image Stabilized Optical Zoom Camcorder; it was then converted to a MPEG-4 format and edited on a MacBook Pro using iMovie '09, version 8.0.6, software for Macintosh. The final product was uploaded to four Apple iPods with video capabilities for use in this project. The iPods used were three third generation iPod nanos, with four gigabytes of memory and the ability to play videos. Additionally, a fifth generation iPod nano, with 16 gigabytes of memory served as a back-up device in case any of the iPods malfunctioned during the project. The iPods were worn in armbands that held the iPods on the participants’ arms for easy access during the project.

**Using an iPod.**

This phase of the study was designed to determine whether the use of VP utilizing an Apple iPod nano® would be successful in the delivery of a vocational or life skill for students with MoID who are at the high school level. Each student in the pool of six potential participants was given an iPod nano with a video in which popcorn was being made to begin the process of learning how to use the iPod appropriately.

The potential participants took turns using a video on an iPod to make microwave popcorn. At first, the group of participants was shown the video on the white screen board in my classroom to familiarize them with the procedure to make popcorn. I went through the task of making popcorn on a step-by-step basis, demonstrating each of the 11 steps to make microwave popcorn. The video showed a stop sign when the participants were supposed to pause the iPod.
and then complete the step of the task that they had just watched. After completing the step, the participants were instructed to restart the iPod to watch the next step of the task and to continue in like fashion until the task was completed.

All of the potential participants took turns making the microwave popcorn using an iPod after the group of participants watched the video together on the iPod screen on a daily basis. The participants were shown how to place the iPod on their wrists or forearms and then how to find the video for making microwave popcorn on it. Each participant was given the opportunity to turn on the video, to watch it, and to complete the step on an independent basis. Using a SLP procedure with a three-second delay, I would either block an incorrect attempt and correct it, or I would complete the step for the participant as the participant attempted to make the popcorn in a microwave. The participants continued this process until the end of the school year.

Upon their return from the summer break, I reviewed the procedure with the participants for three days and then began the assessment of the participants’ ability to operate the iPod and to complete the task. Each participant was given a “+” or a “—” for turning on the iPod and for successfully pausing and restarting each of the 11 steps of the microwave popcorn task, for a total of 12 possible steps to complete using the iPod. Participants were not scored for their ability to complete the actual steps of the task, but only for whether they could pause and restart the video at the appropriate point.

The students were presented with the task of turning on the iPod, getting the video to the “Begin” screen, and then watching each step of the task of making microwave popcorn in a short segment. In the video, a stop sign would appear when the current step was complete and the word “pause” was spoken through the audio of the iPod. All of the participants appeared to enjoy using the iPod and were willing participants in the project. All three participants attained
scores of 80 or better in practice sessions that involved pausing and resuming the iPod, both at the end of the previous school year and after the first three days of the new school year. Another participant began the process of learning to use the iPod for video prompting, but moved on to a post-secondary option at the end of the school year and was unable to continue in the project. A 16-year-old female, Julia, who began the school year as a junior in high school, replaced him in the project.

On the three successive days that began the school year, I had each of the participants complete the popcorn video using the iPod to make popcorn for the class for the daily coffee break that occurs shortly after 9:00 a.m. each day. I provided assistance during each of these instances with the intention of providing familiarity to the participants in the use of the iPods on a practical basis. Julia required additional assistance, as she had just been introduced to the task of pausing the iPod and resuming it. Individual assistance in teaching her to use her index finger to press the pause button was provided by the paraprofessional in the class and the occupational therapist.

The design for phase one of this research study was a Multiple Probe design across three students (Gast, 2010; Tawney & Gast, 1984). Single subject design has been utilized in an increasing number of educational research studies in the field of special education; it has now been the design chosen for research reported in at least 45 educational journals (Gast, 2010; Horner et al., 2005). This data collection procedure was chosen specifically because of the subjects involved and the widespread use of single case design in the field of special education. Single-subject research was developed to evaluate the effectiveness of interventions with individual students (Baer, Wolf, & Risley, 1968). Because each of these students has an IEP, the
logic of studying the individual and his or her responses to a treatment allows there to be a focus on participants’ differences and how the treatment can be successful (Gast, 2010).

This phase of the project was quantitative, pre-experimental research that uses a principle known as baseline logic in which participants serve as their own controls (Gast, 2010; Sidman, 1988). The participant was exposed to both a baseline condition (the control) and a treatment condition in which the independent variable was applied to the participant (Horner et al., 2005). Essentially, the individual participant was the unit of analysis for the study (Horner et al., 2005). The results may not be directly generalizable to the larger population of students with similar disabilities, but they can be used to evaluate the effectiveness of the treatment with the individuals in question (Gast, 2010). The success or failure of the treatment will then direct me in dealing with additional participants. A clear identification of the procedures and instruments utilized in the study serves to more effectively enable the replication of the study at some time in the future; this is desired so that the body of educational research in the chosen field can be expanded.

In this particular research design, the information that was obtained is extremely relevant to the IEP that is written for each of the participants. The tasks upon which the participants work each day are conducive to intensive study by the students, because they often require multiple attempts at each task. Individualized research can produce a tremendous amount of information when a researcher concentrates singularly on a participant. In addition, the use of a second observer to enhance the reliability of the data collection further enhances the quality of the individual information obtained about each participant. Finally, as mentioned previously, the individual treatments were videotaped to increase the validity of the data collection.
All of the participants were observed for their ability to perform each of the steps of the TA on an independent basis. The information that was gleaned about the component parts of a task allowed me to pinpoint specific areas of need that could not have been obtained during a quantitative group study, which would have included a minimum of 30 participants. As such, single-subject research in this case functioned as the method of choice for participants in this low-incidence special education program and generated support for the specific methodologies that have been shown to be successful with the participants. The utilization of a single-subject design study provided evidence-based research that addressed the intent of both IDEA and NCLB (Gast, 2010) in the provision of practical methodologies that have a solid research base.

As mentioned previously, this section of the study utilized a multiple probe design in which, during the first phase, the participants were measured three times on a task analysis for the vocational skill of a packaging task with no treatment (the baseline) or until the affirmation that a predictable pattern of data points had been collected (Horner et al., 2005). Each participant was told to begin the packaging task and was given three seconds to begin to respond and 45 seconds to complete the step. The other two participants were moved to another area of the classroom so that modeling of the task would not be allowed to occur. If participants answered correctly, they were prompted verbally to continue to the next step. If participants responded incorrectly by performing the wrong step of the TA, which is called a topographical error, they were allowed to complete the step. If a participant answered incorrectly by not initiating the step in three seconds or by not completing the step within 45 seconds, I turned the participant around and completed the step for the participant. The participant was then turned back to the task and asked to continue with the responses, as in the first step.
Probes were conducted to determine the participants’ level of functioning before and during the use of VP with the iPod. The fact that the participants functioned at the 10% independent level on the task confirmed that they were qualified to participate in this project. Any participant that scored over 30% independent on the TA would have been replaced in the study.

Next, during the second phase, with the introduction of the VP intervention, a minimum of three data points were collected, up until the criterion was attained on the first participant. Probes were then taken on all three participants. Next, the VP was introduced to the second participant for a minimum of three probes or until the criterion was attained. Probes were again completed on all three participants. Finally, the VP intervention was introduced to the third participant for three probes or until the criterion was attained. All three of the participants were then probed without VP for a final time to determine their levels of independence.

According to Gall et al. (2007), the baseline conditions must be described precisely to enable an exact conclusion to be drawn about what the successful treatment conditions are. The data collection tool or dependent variable was the TA of the packaging task under consideration. As mentioned previously, the use of a trained paraprofessional as a research data collector enhanced the reliability of the results collected on the TA. The minimum inter-rater reliability target was at least 90% for the TA to be acceptable for this study (Alberto & Troutman, 1995).

**Parent Surveys**

Data were collected from the parents of the participants using a 5-point Likert scale utilizing 10 statements about the perceived performance of their children in the project (see Appendix B). These data were collected to help determine how the parents and guardians of the participants viewed the project and the results. The use of survey research is an attempt to find
data that are not overtly visible to the researcher (Gall et al., 2007). Survey research is often used to assist a researcher in assessing the attitudes of perceived trends in the field of education (Kern, 2006). Students in special education programs are reliant upon their parents and guardians to ensure that their best interests are being addressed. Success for these students is dependent upon support from both the school and the family. This survey was designed to assess the feelings and attitudes of the parents and/or guardians of the three participants toward their use of an iPod to complete this project.

**Student Questionnaires**

Researchers have often collected data about students in special education programs using questionnaires in order to assess program viability (National Center for Education Statistics, nd.) A questionnaire is a tool that is used to collect data for survey research. In quantitative research, the sample chosen represents a larger group so that the findings can be generalized, but this is not the case in qualitative research (Gall et al., 2007). For this phase of the study, the participants were queried using a short questionnaire minimally requiring only “yes” or “no” responses. The participants were all encouraged to expand on their answers. These data assisted in the establishment of social validity for the project and were collected by the primary researcher. Additionally, the data collected were a primary source of information that could provide some indication about whether the self-efficacy of the participants was impacted by the application of the VP with an iPod.
Data Analysis

Multiple Probe Observations

Task analysis.

A task analysis (TA) for completing the packaging task was developed and reviewed by the lead researcher and the assistant to ensure that each of the individual steps was clear and attainable by the study participants (see Appendix A). I utilized a first person perspective and videotaped the task from start to completion. This TA served as the basis to determine whether progress had been made on the task, which was the dependent variable in the study. See Appendix A for the preliminary example of the TA that is presently utilized by the teachers to complete the packaging task. Each of the participants was given verbal instructions regarding the completion of the task, which was followed by the steps of the TA that had been developed.

The TAs were scored and then stored in my locked classroom in a locked cabinet for safekeeping. This follows the local school district mandate that the classroom teacher’s computer and student records must be kept in an area that is double-locked, which in this case, was the locked cabinet and the locked door of the classroom.

Recording procedures.

All of the participants in the study were trained in the use of an iPod to ensure that they would be able to independently operate the device in a learning environment to make microwave popcorn. The original intent was to spend three to five days, during which each of the participants were trained in the use of an iPod for about an hour a day, until they attained independence. The participants were taught the proper use of the iPod in the academic setting. All of the participants were instructed that the use of the iPod was limited to viewing the task on the iPod during their time working on the task. Both of the iPod models that were utilized for the
research project have a lock button that prevented the participants from changing the settings or attempting to view another video or listen to music. Once the participants learned how to use this button, however, they were free to access other areas of the iPod independently. Anecdotal data were collected to determine whether the participants in the study utilized the iPod only for the intended purpose.

During the baseline phase of the study, the observer and I collected data on the participants while they worked on the packaging task on an independent basis. Each participant was told to put the package together and then was given 20 seconds to respond. When the participants were nonresponsive, they were told to complete all of the individual steps that they knew how to do. Completed steps were scored as independent at this stage. At that time, the participants were asked if they were finished. If the participants responded that they were finished, the probe was discontinued. If the participants remained unresponsive for an additional 10 seconds, I discontinued the probe.

Three observations or probes were taken to establish baseline data and to determine that the task was totally unfamiliar to the participants. Initially, each component of the TA was marked as done independently or with some assistance by the assistant and me. During the collection of the baseline data, I was cognizant that the trend of the probes must show the status quo, indicating no improvement in the participants’ ability to perform the task, or they could have shown a decline in the students’ ability to complete the task independently. If the data collection trend line was moving upward, it would not be possible for me to draw a reasonable conclusion after beginning the treatment, i.e., in this particular case, it would not be possible to determine the causal factor for the improvement. For a causal relationship between the treatment variable and the improvement in the performance of the task analysis to be confirmed, an
increase in the percentage of independent steps on the TA must be noted, along with a corresponding uptick in the trend line (Gast, 2010).

Because random assignment is not a factor in single-subject designs, other factors must be taken into consideration to provide the necessary controls for internal validity. As mentioned above, the reliability of the observations provided strong evidence that what the primary researcher reported actually occurred. The training of the additional observer provided additional strength to the design. Furthermore, as more observations were completed, they provided a clearer picture of what actually occurred. Next, a clear, precise and detailed description of the experimental conditions is necessary, as researchers in single-subject research cannot assert the generalizability of their results based upon a single treatment or intervention. However, the aspiration of single-subject research is the ability to replicate the design and the experiment, and thus, to add to the body of work that shows successful methods to deal with students with disabilities. Detailed descriptions of experimental designs enable them to be replicated, thus strengthening the conclusions that have been obtained.

Video of the actual treatments provided additional evidence, as all of the data collectors involved were able to review a permanent record of the baseline data collection and the treatment data collection. My original intent was to have the secondary researcher view 30% of each participant’s sessions. Due to unforeseen circumstances, the secondary researcher was able to view only 20% to 28% of the participants’ sessions.

A measurement of the inter-observer agreement (IOA) was made to ensure that data collected by the primary researcher were valid for study purposes (Gast, 2010). In the case of the treatment, the internal validity is enhanced when the “magnitude of the change in the dependent variable is immediate and abrupt” (Gast & Hammond, 2010, p. 248). Each participant
had a video TA of the task that broke down the overall task into its component steps. The dependent variable in this study was the checklist of each individual task, and it was utilized as the instrument to measure whether the participant completed the task independently in both the baseline and treatment phases of the study.

During the course of the treatment, it was necessary to utilize some of the errorless techniques to reinforce the steps that were being followed with the iPod. This type of learning emphasizes the positive practice and actual successful execution of a task (Wolery, Bailey, & Sugai, 1988). These successful activities preclude the participant from the performance of an incorrect response, which may then make learning of the original task more difficult. These procedures are in place while needed, but are then phased out as the student achieves more and more independence. These additional procedures included gestural prompting, in which I used my hand and arm to point to the correct choice. I also used the system of least prompts on occasion (SLP), which allowed the participants to answer using the level of support they required to complete the task correctly for each attempt (Wolery et al., 1988). Finally, I also used a “jig,” which is a device or model that a person with a developmental disability often uses to hold materials or to guide the process of completing tasks in a vocational setting, with some of the participants (Developmental Disabilities Resource Center, 2014).

**Parent Survey**

Survey research is a method of data collection that utilizes interviews or questionnaires to obtain data from a selected sample in order to generalize findings (Gall et al., 2007). In this case, I chose to use a survey to interview the adults responsible for the participants in the project to ascertain their feelings toward the project and the technology utilized by their children. Obtaining this data gave me a different perspective regarding the learning experiences of the
participants. It also helped to reveal the attitudes of the parents with regard to a new method of delivering curricular content to their children.

In this phase of the project, I sent the survey (Appendix B) to the parents or guardians of the three participants. Two of the three parents returned the surveys within two days of the request. It was necessary to resend the survey twice to the third party, as the original copy was lost. This survey was returned approximately two months later. The survey data collected were aggregated, and the mean scores were obtained. An individual analysis was completed, as there were only three surveys, which made the mean scores somewhat meaningless.

**Student Questionnaire**

The student questionnaire implemented another form of survey research and was intended to obtain data from a select group of participants that could then be generalized to the broader group of students with MoID. The questionnaire was completed about one month after the multiple probe observations task data was collected. I met with each of the participants individually and privately, and gave each one of them an opportunity to answer each of the questions (Appendix C). The questions were designed to be answered by only a simple “yes” or “no” or a one or two word phrase. Each of the participants was given the opportunity to expound upon their answers beyond the yes/no possibility. The data for the questionnaire was aggregated, but I determined that individual analysis was more meaningful. Comparisons of the data were made as the participants expressed attitudes toward the research project.

**Trustworthiness**

The ultimate goal of this research project was to add to the body of knowledge in education. For a study of this nature to have value, others who are interested in the research need to have confidence in the results presented. To attain this confidence, a researcher needs to
ensure trustworthiness, which assures other researchers that a certain level of rigor has been applied to the study.

Trustworthiness deals with the validity and reliability of a qualitative study (Merriam, 1998). Because of the distinct nature of qualitative research, the manner in which validity and reliability is attained is distinct as well. In qualitative research, to develop a level of trustworthiness, one must address the issues of credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985, as cited in Cohen & Crabtree, 2006).

**Credibility**

Credibility is the evaluation of confidence in the truth of the findings of the study. In this study, the procedures to ensure it included persistent observation, pursuant to Lincoln and Guba (1985, as cited in Cohen & Crabtree, 2006), in which the participants in the study were evaluated during the multiple probe observations over a course of three months. As mentioned previously, two of the participants, Mike and Carla, were in their fourth year in my classroom, and the third participant, Julia, was in her second year in my class. This factor gave me a depth of knowledge about the participants that would not have been available to me if they had been unknown to me.

In my study, I utilized three different methods of data collection, which helps to provide triangulation to confirm the findings of the study (Merriam, 1998). The use of methods triangulation, in this case, the use of both quantitative and qualitative data, reveals differing aspects of the same phenomenon (Patton, 1999) and expands our understanding of them from differing points of view. Quantitative data, in the form of the multiple probe observations, along with the qualitative data collected from the parents and guardians, and the participants themselves, helped to provide a better understanding of the use of the iPod to deliver VP to students with MoID.
Transferability

Another aspect that leads to credibility, according to Lincoln and Guba (as cited in Cohen & Crabtree, 2006), is the use of thick descriptions to enhance the possibility that the findings will be transferable by other researchers to other students in other classrooms. I endeavored to include as many details as possible to provide other researchers with a firm understanding of the group of participants with whom I worked, so that they can easily compare their own situations to determine whether the use of VP with an iPod could be applicable to them. The detailed descriptions of each of the participants and the setting of the project should provide other researchers with an adequate resource to determine whether the findings would indeed be transferable to their situations.

Dependability

The dependability of my study was enhanced by the use of protocols for the collection of the multiple probe observations. For all three participants, each individual data collection observation was also videotaped. To ensure that I followed the protocols, the paraprofessional in my classroom served as an observer; that individual reviewed the actual performance of the participants and my compliance with the protocols for Mike, Carla and Julia in 28.6%, 20% and 22.6% of the observations, respectively. This review is considered to be an external audit (Lincoln & Guba, 1985, as cited in Cohen & Crabtree, 2006) of the findings, in addition to the process of using VP with an iPod for students with MoID.

Confirmability

The last area that was addressed by Lincoln and Guba (1985, as cited by Cohen & Crabtree, 2006) is that of confirmability. This area refers to the findings of a study and the assurance that the participants in a study, instead of researchers and their biases, determine the
results. This factor can be confirmed by the use of an audit trail, through the notes and data collected in various manners. In addition, the confirmability in my study is also established through the use of triangulation, as three separate sets of data were collected for this project.

**Ethical Considerations**

During the research project, all of the preliminary data that were collected were stored in my locked file cabinet. Any data that were removed from the classroom for review at home were kept secure in my briefcase and computer. Each time I had to leave town, all hard copies and digital copies of the collected data were kept securely in my safe at home. Each participant in the study was given a pseudonym for anonymity, and the school setting was given a general geographical location to ensure that readers could not identify it.

I received local school district approval for my study in December 2012 and IRB approval for this study in January 2013. Once my local school principal approved the study, this information was submitted to the district level as a formality. Each of the parents or guardians of the participants were sent a letter describing the project, and their approval was solicited and received (see Appendix D). Once this occurred, I met with each of the participants and explained what I intended to do and the letter of assent that I had developed (see Appendix E). Each of them agreed verbally and signed the letters of assent. All of the participants were told that they could opt out of the study at any time and for any reason with no recrimination, as I wanted to include participants who actually wanted to participate.
CHAPTER FOUR: FINDINGS

Effectiveness of Video Prompting

Learning to Use an iPod

This chapter will address the data collected, the manner in which it was collected, and the findings that were obtained. The data were collected in an attempt to discern whether VP using an iPod with video would be able to teach vocational skills to students on the high school level with MoID. During the last month of the school year before the project was begun, each participant was initially given an iPod nano with a video of a person making microwave popcorn so that they could practice pausing and restarting the iPod nano. After each step of the task, a red stop sign was displayed, and I said the word, “pause.” The students practiced pressing the pause button on the iPod until they were able to complete the video and attain at least one score of 100% in independently pausing the video on the iPod nano. At beginning of the next school year, the participants were given an opportunity to review their use of the iPod to make sure that they were still able to pause the iPod at the end of each individual step.

Figure 1. Preliminary iPod practice--Mike. These data represent Mike’s scores for independently turning the video on and off on the iPod before the treatment began. The y-axis is

98
Mike’s percentage of accuracy in turning the iPod on and off while watching a video to make popcorn. The x-axis represents the number of practice attempts.

Out of 10 opportunities at the end of the previous school year, Mike was able to properly operate the iPod with 100% accuracy in eight attempts, and he scored a 92% on the other two attempts, for a mean score of 98% (Figure 1). Carla was able to attain a 100% success rate on the iPod in seven of 10 opportunities, and she scored 92% on her other three attempts, for a mean score of 97.6% (Figure 2). Julia was only able to complete two attempts, scoring 83% and 92% on them, for an average of 87.5% (Figure 3).

![Bar graph showing accuracy over attempts](image)

**Figure 2.** Preliminary iPod practice--Carla. These data represent Carla’s scores for independently turning the video on and off on the iPod before the treatment began. The y-axis is Carla’s percentage of accuracy in turning the iPod on and off while watching a video to make popcorn. The x-axis represents the number of practice attempts.

Data for the treatment were collected during the end of one school year and the beginning of the next, over a three-week period. Upon their return to school at the beginning of the new school year, the participants were given a one-day review, and then they were tested again on their ability to correctly pause and restart the video on the iPod. Mike and Carla both had four opportunities each to turn on, pause and restart the iPod, and they scored 100% on all
opportunities. Julia was given seven chances, because she had only had two chances at the end of the previous school year. She attained a mean score of 90.4% on her attempts, which included one instance of scoring 100%. Through the results obtained, all three participants indicated their readiness to begin the actual intervention.

Figure 3. Preliminary iPod practice--Julia. These data represent Julia’s scores in independently turning the video on and off on the iPod before the treatment began. The y-axis is Julia’s percentage of accuracy in turning the iPod on and off while watching a video to make popcorn. The x-axis represents the number of practice attempts.

**Dependability or Reliability**

Inter-observer agreement (IOA) data were collected for all three participants utilizing the special education paraprofessional assigned to my classroom. These data were collected for Mike, Carla and Julia at the rates of 28.6%, 20% and 22.6%, respectively, by the paraprofessional in my classroom. The data collected represent the number of times the secondary data collector viewed the treatment and collected data for each treatment. The IOA was 98.6% for Mike, 98% for Carla and 97% for Julia. An area of disagreement between the secondary data collector and me was the amount of time needed by the three participants to complete task step number four of the TA. With regard to fidelity to procedure, Mike, Carla and
Julia all had scores of 100%, respectively, as measured by the data that the paraprofessional assigned to my classroom collected. This means that she documented that each time I presented the treatment to the participants, I followed the procedures set forth. These data add to the trustworthiness of the findings; Lincoln and Guba (1985, as cited in Cohen & Crabtree, 2006) refer to this as an external audit, which confirms the findings of the original researcher and enhances the dependability of the findings. Each of the participants required additions to the experimental intervention to attain success on the packaging task. These additional procedures included the utilization of a jig, gestural prompting and the SLP procedure. The ramifications of the use of these procedures will be discussed further in Chapter Five.

**Data Collection, Mike**

Figure 2 presents the data collected for each of the three participants on the multiple probe treatment. Data were first collected for Mike, a 17-year old young man with eligibility in the state of Georgia for students with MoID. After establishing a baseline of 10% independent using the intervention, Mike began his intervention at the end of the first full week of the school year. The 10% independent score indicated that Mike was only able to complete 10% of the steps of the TA independently before the introduction of the iPod with VP. Any score of 30% or higher would have precluded the participants from the treatment project. All baseline, probe and intervention data were completed during the ensuing 12-week time frame.
Figure 4. Mike’s progress in completing the task over the three months of data collection. Note the wide swings in Mike’s data at the beginning of the collection. The gap represents the time period in which he was given time off from the treatment. When he restarted, Mike needed additional support to be successful, but was finally independent at the end.

Sessions four to 18 were recorded with Mike using the iPod to watch and listen to the packaging task. As can be seen from the data in Figure 4, Mike had very inconsistent results during this time frame. It appeared that he was making progress during several of the sessions, but fell back in subsequent ones. After 14 sessions with inconsistent results, a visual inspection of the data collected indicated no definitive trend in the results obtained. Mike’s median score during the time period was 40, the mean of the data was 36.4 and the range of the first 14 interventions was 60. It could be argued that a very weak upward trend was indicated; however, this trend, if allowed to continue through the end of the project, would have greatly increased the amount of time spent in data collection. The decision was made to add the use of a jig to the intervention to assist Mike to focus on the steps of the task, and hopefully, to decrease the amount of time needed for the completion of the data collection.
It is quite apparent from a visual inspection of the data, from points 18 to 35, that an upward trend is indicated. The mean score increased by almost 27 points, and the median score increased by 20 points from the first set of intervention scores and the second set, which included the use of a jig. The mean score of this group of data is 63.3, with a median score of 60 and, once again, a range of 60. My main concern at that time was the fact that the range of scores was still 60, although it was within an upward trend of scores. This type of inconsistency is a concern, and it continued, even after the addition of the jig for Mike.

A level of frustration also appeared to develop for Mike, as he did not appear to do his best during these sessions. Mike had been given classroom “bonus bucks” for his participation in the project, and he was able to purchase some computer time for leisure activities up to this point. He was not as cooperative when he was asked to go to the area where the project was administered, and his scores appeared to have plateaued after an initial increase upon the utilization of the jig.

After probe number one (session 36), I felt additional concern, as the score of this probe (50), without the use of either the iPod or the jig, had fallen below both the median and mean of the set of scores from sessions 18 to 35. I decided to increase the strength of the reinforcer in an attempt to motivate Mike so that he would give his best effort for the remainder of the project. This appeared to have been successful, as Mike attained the criterion in four of the next five sessions and was close to the criterion in the fifth of these sessions (the criterion was determined to be a score of 90, if the one step that was not successful was step number four, in which five screws and nuts were to be put together within 45 seconds, or a perfect score of 100).

Two probes were then done with Mike, and the scores for these sessions (#42 and #43) were 70 and 30, respectively. Considering that these probes had fallen so much from the
criterion, the decision was made to reinforce the steps of the task with a system of least prompts (SLP) procedure to ensure that Mike would quickly reacquire the criterion level. The score of 30 on the probe of session 43 brought Mike below the median and mean of the first set of sessions (four through 18), so the introduction of an errorless teaching procedure such as SLP was thought to be a good choice to reinforce the skills that Mike had achieved in the proper order.

In a SLP procedure, the intention is to give the participant the opportunity to respond correctly with the least number of prompts to accomplish each step of the task. Because Mike had completed several weeks of training at that time, it was felt that a three second delay was adequate for me to know whether Mike was ready to complete each step independently. When Mike attempted the step of the task correctly, I allowed him to continue. If Mike did not start, I completed the step of the task for him and then allowed him to attempt the next step.

Mike was then given the iPod and told to begin the packaging task. He completed two sessions in which I utilized the SLP procedure, and he attained scores of 60 and 90. In the next three sessions, Mike reached the criterion, using only the iPod to direct him. Following these three sessions, Mike was able to complete a probe session (#49) at 100% independence.

Among the three participants, Mike required the largest number of sessions to attain the criterion. It is difficult to pinpoint exactly why this occurred, but there are some factors that were likely to have had some influence upon his performance. On his school information card, Mike’s parents indicated that he takes 70 mg of Vyvanse daily, 20 mg of Aderall once daily, 30 mg of Aderall once daily, 500 mg of Depakote twice daily, 10 mg of Zyrtec daily and 0.2 mg of Clonodine HCL three times daily. The combination of these medications in his system could cause him to be sleepy or tired, and could prevent him from performing at his optimum level.
Mike’s performance at the beginning of the project could be described as sloppy. Mike has the ability to count to 30 without assistance, yet he would often have difficulty in counting a set of five or 10 objects during the completion of the steps of the packaging task. A jig was developed using scans of the packaging items in color that were placed on a manila folder and laminated. The jig was used to assist Mike to focus on counting the appropriate number of items needed for a particular step. Issues arose with the jig, as Mike would place an item, such as a screw, on the jig. If the item stayed in place, Mike was fine and went on with the rest of the step. However, if the screw rolled off the jig point indicated, Mike would then perseverate on getting the screw back on the spot, instead of continuing with the counting process. As can be seen by the scores, Mike did indicate an upward movement from session 18 through session 40.

After a further review of the data, it was found that Mike scored significantly better in the sessions he completed in the morning, as opposed to the ones he completed in the afternoon. In his morning iPod only interventions, Mike had a mean score of almost 48% independent on task completion. For his afternoon interventions, Mike had a mean score of 36% independent. In comparison, in Mike’s iPod plus jig morning scores, Mike attained a mean score of 77.6% independent, while his afternoon scores indicated that he was 67.5% independent. In both cases, Mike scored about 10 percentage points higher in his morning sessions, as opposed to his afternoon sessions.

**Data Collection, Carla**

Carla started the project as a 19-year-old and had a birthday during the course of the interventions. Carla was the second participant to engage in the intervention and began during the time in which Mike was removed from participation for a short time.
Figure 5. Carla’s progress in completing the task over the three months of data collection. Carla was the most successful with respect to using only the iPod for the treatment. She required the use of the jig for a short time to correct some errors that she had begun to make.

Upon completion of the baseline data, Carla completed a probe, indicating that she had not attained any skills during the baseline data collection. Carla made progress in a positive direction from session number five to session number 11, but seemed to have plateaued at sessions nine, 10 and 11. At this point in the project, Carla made the same mistakes in steps two and three, and there was concern that these mistakes would quickly become engrained in her memory and would be difficult to change. Carla began step two by taking out bolts, instead of the screws that were requested in step two. She then would continue to step three by picking out five more bolts (the correct action for step three). Then, she would move on to step four, which required the participants to put the five bolts on the five screws and place them in the blue section of the black plastic box. Carla, however, chose to take the 10 bolts that she now had (the five that she had incorrectly taken in step two, and the five that she had correctly taken in step three) and pick out screws from the container, to complete step four. She then put ten screw and bolt pairs together and placed them in the blue section of the black plastic box.
This action continued for five sessions, and there was no indication that this behavior would abate on its own. I decided to use a jig, which would be used only for step two, to break the pattern that Carla appeared to be establishing in her choice of bolts, instead of screws, in step two. The jig was a section of a manila folder with a scan of five screws pasted on it, and it was laminated for permanence. The jig was placed at the project table, and Carla was instructed to use it to complete the task. Carla utilized the jig for the next five sessions and attained the criterion for four of the five sessions. A decision was made to place the jig on the table with the scans of the screws facing away from Carla and to allow her to proceed on her own in session number 17. Carla completed the task without utilizing the jig for the remainder of her sessions, and she was able to attain the criterion during sessions 17, 18 and 19.

During the three subsequent probe sessions, Carla scored 90 in all three, but was only able to attain the criterion in one of the sessions. In the two sessions in which Carla did not attain the criterion (sessions 20 and 22), she made simple counting mistakes, and it was determined that she required a review intervention using the iPod. Carla completed this intervention (session 23) and completed two probes in which she attained scores of 90 and 100, both of which reached the criterion level.

In a comparison of Carla’s morning and afternoon session performance, Carla had better performance overall during her morning sessions, as compared to those she attempted in the afternoon. During the morning sessions, in which Carla utilized only the iPod to complete the packaging task, she scored nine points better than the sessions that were attempted in the afternoon. In the five sessions in which she utilized the iPod plus a jig, she also showed better performance in the mornings; however, if the small number of attempts is taken into consideration, it is difficult to attribute much weight to them.
Data Collection, Julia

The final participant, Julia, is a 16-year-old female who completed her baseline scores at the beginning of school in August. Her baseline scores, along with her first two probes, indicated that Julia did not comprehend the basic idea behind the project and was an ideal candidate. When she worked on an intervention, Julia made topographical errors, which indicated that she was not paying attention to the audio and visual cues she was receiving from the VP. Julia appeared to be quite distractible, as she would attempt to look at others when she heard a new sound or noise in the classroom. Julia, as well as the other participants, occupied an area behind a movable partition to allow the participants a measure of privacy during the execution of the project.

Figure 6. Julia’s progress in completing the task over the three months of data collection. Julia was the last participant to begin the treatment and required errorless procedures to assist her in completing the task correctly.

Julia did not appear to pay attention to the iPod directions, and she continued to put items in the box without regard to the directions. The initial set of intervention scores indicated no clear direction for Julia. Her first eight intervention scores have a mean of 27.5, with a median
score of 30 and a range of 60 points, which indicates that she was not successful at the intervention and revealed no clear direction for her scores. The scores that Julia attained in sessions six through 15 also made it apparent that there was no definitive direction indicated by the scores obtained.

Along with Julia’s difficulty in paying attention, in one instance, she also refused to attempt the task after being asked multiple times by me to perform it. This behavior has been attributed to attention seeking; she exhibits it on an intermittent basis, and it occurs unexpectedly at different times during the school day. This particular instance prevented an intervention from taking place, but it was the only such instance during the course of the project. However, this instance, along with her lack of attention, caused Julia to make little progress in using VP with the iPod for this packaging task.

It was determined that Julia needed additional assistance to become successful on the packaging task. SLP was determined to be a viable option, as it is a simple, effective and efficient method to teach a task with few errors (Wolery et al., 1992.) With SLP, the participant is usually given the opportunity to complete a step of a task independently or without prompts. If the participant did not begin the task, I would give the participant a non-intrusive prompt and would add more intrusive prompts if needed. In this case, the participant had already received a number of trials in which the iPod had shown her, through VP, how to complete each step. It was felt that beginning at a three-step delay, with SLP, would allow Julia to independently proceed with any of the steps that she had indeed learned; in addition, it would allow me to have an indicator of the steps that she had not learned, and I could provide a prompt when it was needed. Sessions number 15 through 25 included the SLP procedure along with the VP on the iPod for Julia. Julia watched each step on the iPod and then was given three seconds to begin the
step independently; if she did not begin, the controlling prompt was administered by me, using physical guidance in the form of the hand-over-hand technique. A simple blocking technique was also utilized to prevent any incorrect behaviors from being performed by Julia. I simply used my hand to gently stop the action and then redirected her to perform the correct action, again using the hand-over-hand technique. Sessions 15 through 19 showed no progress at all, but this can be explained by the fact that Julia had to relearn portions of the task, which is a process that can take a while. A definite upward trend began at session number 20, and it continued until she attained the criterion at session 25.

The use of the SLP procedure in this manner allowed the participant to show me when she was ready to complete the task independently. During session 26, Julia was able to complete the task with no intervention by me, thus indicating that the procedure had been successful. The SLP procedure allowed the participant to determine when she was ready for independence. Julia then completed the next three sessions (#26-28) at a criterion level of 90% independence; the only problem was that step four was not completed within the 45-second time limit. She then completed three probes independently, also at the 90% independence level; the only problem was the failure to complete step four within 45 seconds.

In a comparison of Julia’s performance between her morning and afternoon iPod only intervention sessions, Julia had better results in her morning sessions by 14.5 percentage points. However, the limited number of sessions involved could mean that these numbers are suspect. A comparison of Julia’s iPod plus SLP intervention sessions revealed that she scored better in the morning by 56.25% to 40%. Again, the 40% average of afternoon iPod plus SLP included only three sessions, so it is difficult to have a high degree of confidence in these numbers. However,
the trend exhibited by Julia’s scores is similar to that of both Mike and Carla, in that, overall, her morning scores are higher than her afternoon scores.

All three of the participants required additional assistance beyond that of the VP on the iPod to complete the task to the criterion. Two of the three participants, Carla and Julia, required only one other measure in addition to the VP intervention to attain the criterion, while Mike required both SLP and the use of the jig to attain the criterion level.

**Data Analysis**

**Research Question 1: What are the learning experiences of high school students with MoID when presented with video prompting utilizing an iPod for instructional delivery?**

The utilization of VP, with an iPod as the delivery mechanism, was shown to be a reasonable method to use with students having MoID. The findings in this study were that the methodology worked to varying degrees, but often required the use of additional and more traditional procedures alongside the VP that are typically used in classrooms for this group of students. Once the participants learned how to use the iPod, it became a tool that they could take with them beyond the classroom to be utilized as both an entertainment device and as an educational device.

From the delivery standpoint, teachers who use this tool in their classrooms will have to be dedicated and willing to invest extensive amounts of time to be successful. Finding tasks, developing task analyses, recording the steps of each TA, and editing and uploading video to the iPod are exercises that can require quite a bit of time, effort and expertise from the classroom teacher. Once students learn the task, the iPod has been shown to be a tool that can be used as a backup for students with MoID.
Once the participants attained the criterion level, for Carla and Julia, the time of completion on an independent basis was much faster than using the iPod. Carla had a mean time of 11:37 minutes for each intervention with the iPod only and no other type of assistance. She was able to complete the task independently in 6:45. Julia had a mean time of 15:31 minutes for each intervention with the iPod, but at the end of the project, she was able to complete her task independently in 8:41. Mike had a mean time of 10:41 minutes for his independent interventions and took 10:41 to complete his final independent attempt after attaining the criterion.

It is apparent that the utilization of the iPod is likely to increase the amount of time required for a task, but when the participant has learned the task, the amount of time on task is likely to decrease. During the project, all of the participants utilized the iPods in the manner in which they were intended, as they were monitored by me and, at times, by the classroom paraprofessional. At no time during the project did any of the participants attempt any function on the iPod that was not intended for them. These kinds of concerns can be alleviated by not loading any music onto iPods used for this purpose. The fear that this could occur was unwarranted in this research project.

It is clear from Figures 4, 5 and 6 that all of the participants were able to complete the task independently to the criterion without the iPod at the end of the project. Independent completion of a life skills task of any kind is the preference, as this provides the classroom teacher with added time for other students that may require additional assistance. Once the students master the use of the iPod as a tool, it can be utilized as a backup to support a student in the completion of a task.

In conclusion, the use of an iPod to deliver VP to students with MoID is a reasonable option that educators in the classroom can employ. The iPod itself is a tool that can be used to
deliver entertainment, along with video skills training, and it can be used to motivate students with MoID to enhance their overall educational and vocational experience. Because it is a tool that is seen as having a “coolness” factor, students with MoID can use an iPod for a variety of tasks, and they can feel that they are being socially appropriate, similar to their general education counterparts. With continued research and further utilization of the technology, iPods can become an integral part of the research-based special education classroom.

**Research Question 2: What are the perceptions of parents of high school students with MoID regarding their children’s growth, success and quality of life upon having been presented with video prompting instructional delivery on iPods?**

Each parent or guardian of the three participants answered a 10-item survey (see Appendix B and Figure 7), using a 5-point Likert scale. Overall, all of the parents and guardians of the participants in this study agreed that their children were successful due to their use of an iPod to complete the packaging task. This score was an “agree,” as all three parents scored this statement a four.

In examining whether the parents and guardians saw any improvement in their children’s ability to complete a packaging task, the score was 3.33, which is just slightly better than neutral, which indicated that they were not sure whether it helped them or not. The next statement addressed the responsible party’s feeling that the technology gave the participant additional advantages; the mean score was four, with a range of two. Two parents felt fairly strongly that there were other advantages, while the third was not quite as confident, giving a neutral answer. One parent commented that she felt that it was an advantage for her daughter to learn to follow directions in a different format.
The next statement brought the widest range of diversity among the answers, as one parent felt strongly that her child would benefit from the use of an iPod in daily activities, marking a five, while the other two parents chose a two and a three. This statement led into the next statement, which queried whether the parents saw their child using technology more since the beginning of the project. Two of the three parents agreed to the statement, marking a four, while Julia’s parent scored it as two.

When asking the parents whether they thought the iPod was a hindrance to task completion, one parent scored this as “neutral,” while the other two scored it as “disagree.” This seems to indicate that the parents did not think that the iPod was a hindrance for this group.

The next statement expressed a negative point-of-view, i.e., that their children did not benefit from using an iPod in this study. The mean score of the statement was two, with one neutral comment and two comments disagreeing with the statement. I believe that this indicates that the parents felt that there was a benefit from the use of the iPod to deliver video content to the participants, as they had to disagree with the statement in order to answer the question positively.

With regard to the statement about purchasing an iPod for their children after the study, two parents were neutral, while Mike’s parent disagreed strongly. Mike’s mother wrote an explanatory note along with this statement, which indicated that Mike had once had an iPod and had brought it to school. According to his mother, he had left it at school, and it was gone the next day. She also stated that Mike was capable of finding anything he wants on Google, utilizing his cell phone. The next statement for the parents was another negative statement, stating that the iPod caused problems for their children. Only one parent answered with a three, which is neutral, while the other two both indicated very strong disagreement with the statement.
The final statement on the survey was a rewrite of the second statement of the query, but it was stated with a negative bent. Although the mean scores of the two were different, with a 3.33 for the statement stated with a positive tone, versus a score of 2.67 for the negatively stated statement, the answers, when compared individually, were very similar. Two of the three parents answered both statements with a neutral response, with Carla’s guardian stating that she disagreed with it. That answer corresponds exactly to her answer to the second statement, in which she answered with a number four, which is that she agreed with that statement. These answers confirmed that overall, two of the three adults responsible for the participants were neutral, with one parent feeling that the iPod helped in the completion of this task.

Figure 7. Parent survey scores. This is a visual representation of the scores for each of the questions answered by the parents and guardians.

Research Question 3: How do high school students with MoID feel about the quality of instruction provided by video prompting using iPods, and what is their perceived self-efficacy after said instruction?

Each of the three participants completed a short yes/no type questionnaire after the project was completed (see Appendix C and Figure 8). Of the three participants in the project,
the two females said they liked using the iPod; although Mike initially stated that he did not like it, he then admitted that he did like it “a little bit.” Julia stated that it was easy to use the iPod, while Mike said that it was “a little bit” easy to use. Carla claimed that it was not easy to use. The three participants all agreed that it was fun to use the iPod, and only Julia stated that she had trouble using it. When asked whether they would like to complete their tasks with an iPod, or without one, again all three participants would rather have it to use with their jobs. Finally, when asked what else they would like to do with an iPod, only Julia said that she would like to use an iPod for music, while both Mike and Carla said that they would like to use it to make popcorn, which was the task that was utilized for them to learn to use the iPod.

All three of the participants were able to complete the task independently after completing the project. Two of the three participants gave an unqualified “yes” response to the question about whether they liked to use the iPod, while Mike’s response was a little more subdued, in that he stated he liked it only “a little bit.” However, the two statements that bring the most clarity to this question are the ones that asked whether the participants would like to complete their tasks with or without an iPod and the question that asked what, other than schoolwork, they would do with an iPod. All three participants chose using an iPod to complete their tasks over not using one, which confirmed the fact that they all saw value in the use of an iPod with school-related tasks. This was reinforced when two of the three participants answered that they would like to use the iPod to assist them in making popcorn. The fact that two of the three answered that they preferred using it on a work task, such as making popcorn, rather than a leisure activity, such as listening to music, indicates that their self-efficacy is improved when they utilize an iPod in their daily routine.
This is noteworthy because Julia answered that she had some trouble using the iPod. Despite her difficulties, she still answered that she wanted to use an iPod to assist her in making popcorn, as she had when learning to use the iPod before the project started.

Figure 8. Participant answers to yes (1) or no (2) questions #1-4. This is a visual representation of the participants’ answers to the four “yes/no” questions asked after the study was completed.

Summary

The utilization of an iPod to deliver video to high school students with MoID was found to be an effective practice. Content delivery with an iPod is a practical method to motivate students to complete vocational tasks and reduce the amount of time directly spent by the classroom teacher. The size of an iPod allows it to be a device that can be taken and used in almost any vocational environment, giving much needed support to young adults with MoID. Although development of content for usage by the students is a time-consuming task, it is useful in supporting the classroom teacher in the delivery of content. Overall, the parents and guardians
of the three participants were in agreement that the iPod allowed their children to be successful in this project and that there were additional advantages in the use of the iPod to deliver content. Their feelings toward the iPod overall, however, were somewhat more neutral, which can likely be attributed to the fact that they did not see their children using the iPod for a school-related task.

Overall, the participants were in favor of using the iPod for this task, and they became aware of the fact that their abilities were enhanced when using the iPod to complete a task. The use of a “cool” piece of technology provided the participants with the option to use the device for entertainment or to assist them in the completion of their daily tasks. These types of options serve to empower young adults with MoID.
CHAPTER FIVE: DISCUSSION

Summary of the findings

While working with students with MoID, educators are faced with developing curricular methods that are successful, easily replicated and can be completed in a consistent and timely manner. When these qualities are attained in a methodology, success can be expected to occur more frequently in classroom and community situations. In addition, easily replicated methods can relieve some of the pressure felt by classroom teachers in their attempts to provide individualized education to the students in their classrooms.

The purpose of this study was to gain a richer and deeper insight into the learning experiences of students with MoID when portable video devices are used to deliver video content for VP, and its impact upon their vocational skills. It was anticipated that the use of portable video devices would provide educators with a simple method to provide content delivery to students with MoID, which would allow teachers the opportunity to work with others, while content delivery, using an iPod, is taking place elsewhere.

The results of this study indicate that it is not as simple as handing iPods to students and expecting them to use a new content delivery system. All three of the participants involved in this study required at least some additional assistance in one form or another, to accompany the iPod in the delivery of VP. It is apparent to me that the use of VP on an iPod is not an ideal methodology to utilize to initially present content to students with MoID in the absence supplemental educational procedures. It also should be acknowledged that there is a substantial commitment of time and effort that will be required of a classroom teacher who utilizes this technology in an educational or vocational environment. Ideally, additional professionals could be enlisted to share in the effort of task video development.
Mike

Mike was able to attain the criterion, but only after 39 interventions with the iPod. After intervention 16, I decided that Mike required additional assistance to accompany the VP intervention to attain the criterion because of the results that were being obtained. Mike was having a difficult time counting the exact number that was required by the packaging task. Mike has the ability to count to 20 independently, as exhibited in his daily classwork, but he became distracted while he counted each of the items that were to be placed in the plastic box, and he often lost his place during the counting process.

There are a number of possibilities that could account for the difficulty Mike had in counting during the intervention, but the most obvious of them is the medication that he takes on a daily basis. Currently, Mike is taking 70 mg of Vyvanse daily; one 20 mg pill daily and one 30 mg pill daily of Adderall; 500 mg of Depakote, twice daily; 10 mg of Zyrtec one time daily; and 0.2 mg of Clonidine-HCL, three times daily. One of the side effects of Vyvanse and Adderal is trouble sleeping, which could have caused Mike's drowsiness in the morning when he tried to count. Sleepiness or drowsiness is a potential side effect of Depakote, Clonidine and Zyrtec, and the use of these five medications together could also be a possible issue that prevented Mike from obtaining an optimum performance on the task. In addition, Mike takes Adderall and Vyvanse for Attention Deficit Disorder; this issue alone could provide a reason that Mike was not able to keep track of his counting when he attempted the intervention independently.

Because Mike had difficulty counting even while he watched the video, a decision was made to add a jig to the intervention to assist him in the completion of the task. I copied the items that were included in the packaging project on an HP printer, and then, they were pasted on a manila folder and laminated. Mike began to use the jig during intervention number 17, and this
continued through intervention number 32. Mike showed some progress during this time period, as indicated by the trend; however, as was mentioned previously, the major concern was that Mike still was functioning within a range of 60 in his scores, which indicated that, although he was improving, there were times when he fell back to lower levels of progress.

These lower levels of progress appeared to be part of the reason that Mike developed a higher level of frustration in his task completion. This was indicated by an increasing lack of desire by Mike to participate in the packaging project, which was evidenced by his comments to me, and his reluctance to move to the area designated for the project when he was requested to do so. At this point in the project, a decision was made to give Mike a short respite in his participation, in the hope that he would become more motivated at a later point. Mike was given an eight-day break from his participation, at which point the intervention with Carla began. When Mike questioned me about why he was no longer working on the project, I determined that sufficient time had passed, and he was reintroduced to the interventions with a jig.

During the first 16 interventions with the jig that were completed by Mike, the level of improvement that he exhibited did not rise to the level of performance that was expected by me. One of the problems that I noticed was that Mike had issues when he counted with the jig because the items that he was counting occasionally rolled off of the surface of the jig. When this occurred, Mike was more interested in placing the item back on the jig than he was in completing the counting task. Because this continued to be an issue, I decided to add modified pill containers to the sections of the jig that had caused Mike’s issues. Mike used the modified jig during interventions 33 through 37, and he showed a great deal of improvement, scoring 90, 80, 100, 100 and 100 on these interventions and attaining the criterion level. However, upon an independent probe following these interventions, Mike’s score fell to 70, which indicated that the
modified jig worked well as a short-term solution, but it was unable to facilitate a transfer to independent behavior for Mike.

Because Mike’s level of frustration continued to increase, I determined that an additional step should be taken to ensure that Mike would be successful in the packaging task. I decided that the use of the SLP procedure should be the next step. It was determined that the delay utilized should be three seconds because Mike was already familiar with the task, and thus, three seconds was ample time for him to begin each step. If Mike began to complete a step incorrectly or to attempt to complete any part of a step independently, I would block the incorrect response and use the hand-over-hand method to complete that part of the step. Mike scored 60% independent during the first use of SLP along with VP, and he scored 90% on his next attempt. Although I was available and ready to assist Mike in his next attempt, which was intervention 40, Mike completed the entire packaging task on an independent basis, using only VP with the iPod. He then completed the next two interventions independently to the criterion. Mike then completed a probe independently to the criterion level with no assistance.

It is also interesting to note that Mike was more successful during his morning sessions, as compared to his afternoon sessions, regardless of the intervention or combination of interventions that were utilized. He scored 10% better on average in both instances. When he was given a questionnaire after the project was completed, Mike indicated that he liked using the iPod “a little bit,” and that he would rather do his tasks with an iPod than without it. He also indicated that he would enjoy using an iPod to make popcorn. In general, Mike’s mother felt that he was successful in this project and that he had begun to use technology more frequently as a result of it.
Carla

With respect to Carla’s progress in the utilization of VP with an iPod, of the participants, she was the closest to completing the task without additional assistance to accompany the video. Carla’s path toward the criterion required only 16 interventions, and she required only minimal assistance during interventions eight through 12. Carla was given a modified jig that showed only the step that she had difficulty in completing correctly.

During intervention number four, Carla attained the criterion of 90% independent, but then, she failed to continue in this progress for two additional interventions. In proceeding with interventions five through seven, Carla made an incorrect behavioral response on step two, which was to simply count out five screws. For an unknown reason, Carla instead began to count out five bolts, after which, she returned to the iPod for the next instruction, which was to count out five bolts. She then correctly counted out five bolts and placed them on the table next to the original five bolts that she had counted out. At that point, she went on to step four, which was to place the bolts on the screws. Carla then proceeded to pick up a bolt and incorrectly take a screw out of the container to complete the step. I felt that a pattern was forming and decided to use the jig to prevent Carla from continuing the choice of a bolt in step two, instead of a screw.

Carla was able to reach the criterion number on the fifth intervention using the jig (intervention number 12.) During intervention 13, the jig was left on the table, but it was facing away from Carla. She chose not to use it and attained the criterion number of 90%. Subsequently, Carla was able to reach the criterion level of 90% for three consecutive interventions. During three subsequent probes, Carla was able to attain the criterion level in one of the three sessions, so I decided to give her one more intervention with the iPod to reacquaint
her with the proper procedure. Following this additional intervention, Carla was able to independently attain the criterion two times.

When Carla was queried about the project, she indicated that she enjoyed using the iPod and that it was fun. Carla mentioned that she did not think it was easy to use the iPod, but she also said that she did not have trouble using it. As with Mike, Carla indicated that she would like to continue using the iPod to make microwave popcorn. Carla’s guardian finally returned the project survey in January of 2014.

**Julia**

Julia exhibited some problems in understanding the task at the beginning of her interventions. She had no difficulty in watching the video and in pausing it when she was instructed, but she seemed to be confused about what she was instructed to do by the VP. It was difficult to determine whether this was due to a lack of understanding, or if Julia was attempting to gain attention from me. She demonstrated that she had listened to the video by responding correctly when I asked what she had been told to do; however, she appeared to be hesitant to move ahead because she was afraid to make a mistake.

During the first several interventions, Julia needed additional verbal prompting to complete the step of the task that she had just watched on the iPod; she hesitated and exhibited behaviors that made it appear that she was unsure of herself and afraid that she would make a mistake. It appears that Julia was having difficulty with her short-term memory, as she appeared to understand the general idea about what she was supposed to do, i.e., take out and count five screws, but she was not able to focus on the number to be counted. In addition, particularly at the beginning, she occasionally did not complete the steps of the task by placing the items
counted in the correct section of the black box. This also seems to indicate a potential short-term memory issue.

In addition, Julia started to establish a pattern of pulling out both the screws and the bolts at the same time, and not individually, as part of the separate steps of the task. After pulling out both the screws and the bolts, Julia would then return to the iPod and watch the next step of the task, which was to select five bolts. She would then count out an additional five bolts, which added to the number that she had already had picked out.

I decided that it was necessary to intervene to prevent the behaviors that Julia exhibited from becoming habitual. Because Julia appeared to have a basic idea about what to do in the steps, but had difficulty with the minute details necessary to complete each step, I decided to utilize gestural prompting to break the behavioral patterns that were being formed and to establish the correct behavioral responses that were necessary to compete each step successfully. Gestural prompting was also used to help Julia stay on track to complete each step in a timely fashion, as she occasionally paused and acted as if she was not sure what to do next. The gestural prompting was used in only two interventions, numbers five and six.

I decided to utilize a jig to reinforce the gains that we made using the gestural prompting. During the first use of the jig, Julia put the items down on the jig, but neglected to place them in the box when it was appropriate; instead, she waited until she was done with the entire group of items and then placed them in the box. In a subsequent use of the jig, in intervention number eight, Julia continued to use the jig and to place the items on it, but instead of then moving the items to the box as instructed on the video, she continued on to the next step. After Julia placed the last item on the jig, she then placed each of the items in the box; however,
because she did not follow the directions when they were given to her, she placed the items in the wrong sections of the box.

It was apparent to me that the jig, along with VP using the iPod, was not a combination that would help Julia to successfully complete the packaging project. I decided to utilize the same SLP procedure that was successful with Mike in an attempt to help her complete the task successfully. Along with the SLP procedure, in which Julia was given three seconds to begin to respond, I used the hand-over-hand method to guide Julia to complete each of the steps in the correct manner.

During interventions nine through nineteen, Julia utilized the SLP method along with VP using the iPod to complete the interventions. Julia showed improvement during interventions nine through 16 and was able to reach the criterion during interventions number 17 through 19. At this point, SLP was discontinued, and Julia was allowed to continue the interventions utilizing only the iPod. The use of SLP and VP with the iPod was successful on the subsequent three interventions, as Julia was able to attain the criterion in the three interventions that immediately followed the use of SLP and VP. Julia then continued to show success in the three subsequent probes, and she was able to reach the criterion on an independent basis.

In the questionnaire that followed the end of the project, Julia also indicated that she enjoyed using the iPod during the project and that it was fun. Julia said that she felt that it was easy to use the iPod, even though she had experienced some initial problems with it. As with the other two participants, Julia preferred to use the iPod for a task rather than not use it. Interestingly, she was the only one that mentioned that she would use the iPod for music, if she were given the chance. For the most part, Julia’s mother was neutral in her feelings toward her
daughter’s participation in the project. She indicated that she felt it was good to present the directions for the project in another format and that her daughter had benefited from the project.

Discussion

One of the motivating factors behind this project was the hope that VP, using an iPod as the delivery vehicle, would be a method that could be utilized to teach life, functional and vocational skills to students with MoID. The use of the iPod could free a teacher to work with other students who require individual attention while some students work on a task using VP with an iPod. It became apparent to me that this method often must be tailored to the individual needs of each participant, just as an IEP is tailored for each individual student in a special education program.

The study did not find that the use of VP alone was adequate to deliver new content to students with MoID. When paired with another educational procedure, however, the participants were able to attain the criterion level for the packaging task. For the most part, the participants were excited to use an iPod, which is seen by them as something “cool,” and that is used by their general education peers on a daily basis. Because all of the participants attained the criterion level while they used the iPod, educators can feel confident that this technology can be used in their classrooms, whether on campus or in the community. The ability to use this technology and to attain positive results outside of the regular classroom environment can be seen as a strong reason for its utilization, regardless of whether it must be paired with another methodology or procedure. Functionally, the use of the iPod has been shown to be a positive motivating factor that the participants in the project, for the most part, wanted to utilize to complete tasks in the classroom.
From the survey data collected, it is apparent that the parents and guardians of students with MoID are willing to support new technology being used with their children. They see the benefit of the technology, but it appears that their lack of familiarity with it prevents them from being even more supportive of the technology. In retrospect, I would have involved the parents to a greater degree, allowing them, at least, to see the video of their children as they completed the task. I think that this would provide the parents with a better understanding of the complexities of the task, and how their children adapted to the use of the iPod.

Julia and Carla were both very excited to use the iPod and often asked to use it to listen to music during off times. Mike appeared to enjoy using the iPod, but there was one period of time during which he was not particularly positive about completing the VP treatment using an iPod. To some extent, this can possibly be attributed to the fact that he is on quite a bit of medication, as mentioned previously. This medication appears to keep Mike sedated, and it also appears to affect his mood. Overall, the participants preferred using an iPod when completing vocational tasks, which bodes well for it to be a useful tool in special education classrooms.

After the study was completed, it was apparent to me that the social learning theory, as espoused by Bandura (1965), played a large part in the success of the participants in this treatment program. The iPod using VP garnered the participants’ attention, which was focused upon the task at hand. Because each of the participants had multiple opportunities to complete the treatment, the chances of retention improved, as seen by the upward trends of the graphs in Figures 4 through 6. When any of the students had difficulties with the replication of a step, errorless learning strategies were implemented to give each participant the opportunity to be successful in completing the task.
The “coolness” factor (Sargent, 2009) helped to motivate each of the participants to complete each of the steps of the video and to integrate the parts into the whole of the task, and thus, to complete a vocational task that had been given to them (Ayres & Langone, 2008). In this case, the task became situated in the experiences of the participants, which allowed them to solve the problem set before them. It appears that Langone’s (2005) assertion that the concept of anchored instruction has broadened to those students with more serious disabilities has been confirmed.

This study can be added to the list of studies that have shown video to be successful in the classroom (Alberto et al., 2004; Ayres & Langone, 2005; Branham et al., 1999; Cihak & Schrader, 2008; Mechling, 2005; Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Rehfeldt et al., 2003). The ultimate success of the participants lends more credence that the use of video in the high school MoID classroom is an evidence-based strategy that fulfills the requirements of both IDEA and NCLB (Gast, 2010).

In addition, the use of VP was confirmed as a successful video strategy to implement with high school students with MoID. Its value to educators has been proven (Ayres & Cihak, 2010; Ayres et al., 2009; Chang & Wang, 2010; Cihak et al., 2006; Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Mechling & Ortega-Hurndon, 2007; Mechling & Stephens, 2009; Van Laarhoven et al., 2010; Zisimopoulos et al., 2011) beyond question. The most important new aspect of this study is the confirmation of the use of a delivery system that is much more flexible than that of the classroom computer. The use of the iPod to deliver VP has moved the device from being solely an entertainment tool into a tool that can be more widely utilized to deliver curricula by educators in the classroom. The iPod can now be used as an entertainment
device, a speech-generating tool and a curricular delivery system, which makes it a valuable tool in an educator’s arsenal in the 21st century (Kagohara et al., 2013).

**Study Limitations**

This study was completed within the confines of my classroom. This necessitated the use of a portable divider to allow the participants to have as few distractions as possible while they attempted the packaging task. The divider also served to prevent the other participants in the study from watching the task being performed before they had an opportunity to complete it themselves.

Because the classroom was the setting, the usual distractions occurred during the course of the study. The classroom shares a bathroom with one of the classrooms next to it. Because both classrooms and other special education students utilize this bathroom, a system of stop signs was instituted to prevent students from going in to the bathroom when occupied and to prevent students from locking themselves inside. This system requires students to place the stop sign on each of the classroom doors before they use the facility. This requires students to enter my classroom to place the stop sign, which occasionally caused the participants to become distracted during the course of their intervention sessions.

The students who were not part of the current study and the participants who were not working on the study task had assignments that were to be completed with the paraprofessionals that were working in the classroom. It was occasionally possible for them to work on tasks in other parts of the school, but primarily, the six students were inside the classroom, which occasionally created a distraction for the participants in the study.

During the course of the study, I attempted to complete the sessions during the first part of the morning, and again immediately after the lunch break. In particular, Mike came to school
extremely tired in the morning and often fell asleep at his desk before he began the daily routine. As noted previously, Mike took multiple medications that may have caused him to be tired and not completely ready to perform the packaging task. The daily classroom schedule did not allow any of the participants to complete the tasks at other times during the day when they may have been more alert and ready to function to complete the packaging task.

In addition to the occasional disruptions that were caused by the classroom bathroom, there were periodic disruptions that were caused by other teachers and therapists who entered my classroom while I was involved in the project. This distracted both me and the participants at the same time and did not provide an optimum atmosphere for the project. Ideally, I would have chosen a room that was totally devoid of extraneous noises and interruptions and that would have allowed the participants to concentrate upon the task at hand. Approximately two-thirds through the course of the study, I discussed the situation with the department chairperson and was given permission to put a “Testing—Do Not Disturb” sign on my classroom door to prevent interruptions. This was not as successful as hoped, as the interruptions continued to occur because people ignored the sign.

More importantly, the use of a jig, gestural prompting and the SLP procedure with each of the participants limits the conclusions that can be made in this study. All three participants required at least one, and in some cases, multiple methods along with the VP on an iPod to ensure that the packaging task was learned and completed to the criterion independently. The intervention with Carla was the one that required the least amount of additional assistance for the completion of the task to the criterion. Carla required the use of the jig for only one step in the task for a period of five intervention sessions. In her case, the decision to utilize the jig was made to prevent Carla from developing incorrect habits during the course of the task.
Inexplicably, Carla began to choose bolts for step number two instead of screws, as was directed on the video that was on the iPod. Because the mistake was replicated in three successive interventions, the jig was used to prevent it from recurring and to redirect her toward the actual step in the task.

Mike and Julia both required multiple additional methods to attain the criterion for the packaging task. In Mike’s case, he utilized a jig, which contained a place for him to count out each of the individual items requested by the video on the iPod. With the use of a jig, Mike made slow, but positive progress in attaining the criterion. I was concerned about the time that was required for Mike to reach the criterion and the inconsistent results that occurred within the positive upward trend line that Mike demonstrated, although he attained the criterion.

**Implications**

It appears that the use of VP alone as a teaching tool for high school students may be somewhat limited, based on the results seen in this study. None of the three participants were able to reach the criterion using only VP with an iPod. While all three participants had the basic skills to complete the steps of the task, including the ability to operate the iPod, the ability to count to 10 and the ability to recognize color, viewing the video on the iPod alone was not adequate to teach the participants how to complete the steps of the packaging task. It must also be mentioned that the VP that was used also contained an audio component, and one cannot be sure that the task could have been learned with only the audio component (Cannella-Malone et al., 2011; Sigafoos et al., 2005). Most studies of this type have utilized the capability of a video device to pair VP with an audio component as their intervention of choice (Mechling, Gast, & Fields, 2008; Mechling, Gast, & Seid, 2010; Mechling & Gustafson, 2008; Mechling & Stephens, 2009; Sigafoos et al., 2005).
However, when paired with other educational procedures such as SLP or CTD, it is clear that the use of VP, delivered by a device such as an iPod, can indeed teach a student with MoID how to complete a vocational or life skills task (Mechling et al., 2008; Mechling & O’Brien, 2010; Norman et al., 2001) such as the packaging task utilized in this study. Teachers can employ this method of teaching tasks within their classrooms as long as they pair the procedure with another procedure that can fully exploit the positive aspects of VP. Many other studies have found success in pairing VP with other educational procedures.

The scores that were collected for the three participants indicated that morning was a better choice overall to attempt these types of tasks. The utilization of VP with an iPod, paired with another educational procedure, is most successful when it is delivered during the morning hours. Attempts after noon should be made with the understanding that optimum performance is not likely to be attained.

The positive results obtained indicate that this is a technology that, when paired with another educational procedure or methodology, can produce results not only in the classroom, but more importantly, anywhere outside of the typical high school classroom. High school students with MoID are aware of their general education peers and the kinds of technology that they are using. Being able to use an iPod as a teaching tool in the community to work on vocational tasks is definitely advantageous for the special educator, as the participants view its use in a favorable social context. The utilization of an iPod for the delivery of VP for task reinforcement was shown to be an excellent use of this technology for students with MoID.

**Implications for Stakeholders**

When looking to the future of the pedagogy of students with MoID, it would appear that technology in some form will be an essential component. This study has shown that, with a little
bit of work and planning, students with MoID have a new tool to utilize while performing vocational or other functional life skills. Although the task of writing and videotaping task analyses can be quite time-consuming, the combined efforts of groups of teachers can mitigate the amount of time needed to develop a library of TAs and task videos.

Engendering the support of the students’ parents would be a wise move, as the parents in this study indicated a fair amount of support with only a modicum of information about the device itself or how it was utilized in the project. Informing the parents of some of the capabilities of the iPod and demonstrating its potential could possibly even spawn support for the purchase of iPods. Due to its size and mobility, the iPod can be used in many different environments beyond the public school classroom, providing the students with a tool that can be used beyond the scope of public education.

The iPod is a tool that, when programmed appropriately, can be much more than just a device for entertainment. This device can elevate the self-efficacy of students with MoID to the point that they are more self-reliant and self-determined in dealing with everyday tasks. Everyone involved with students who are using iPods can have higher expectations of them, which could enhance their level of self-efficacy.

**Recommendations for Future Research**

Considering the results that were achieved in Carla’s intervention sessions, as well as other current research, the use of VP, with an iPod as the delivery device, merits strong consideration as a method to utilize with certain students with MoID. Replication of this type of study is needed to help ascertain, if possible, which types of student with MoID are more amenable to the utilization of this type of technology as a primary method of content delivery.
The clarification of this issue would give the classroom teacher an opportunity to work more closely with other students while VP is utilized with designated students.

A study that replicates the original intent of the current study, using VP with an iPod as the only method, in a location that is more conducive to it, would also be worth attempting. As noted previously, students from other classrooms, teachers and therapists who walked into the room and the students who were in their own classroom often interrupted the participants in the study during the course of their sessions. This would necessitate having a room in the school in which access to the classroom could be completely controlled by the researcher, who would not have any classroom responsibilities outside of the study.

As was determined during the course of the study, it was necessary to pair other methods with VP using an iPod to complete the content delivery and to enable the participants to attain the criterion level. During the study, I utilized two types of jigs with two of the participants for distinct reasons. One jig used with Mike was a laminated manila folder with pictures of all of the items that were to be placed in the plastic box; it was used to assist Mike to avoid losing his place when he was counting each of the items. The other jig, used for Carla, was a small index-card sized jig with a picture of the one step in which she had difficulty during her interventions, i.e., taking out and counting bolts, instead of screws, during step two. The jig that was given to Carla to use in five interventions was a picture of the five screws that she was to count out during step two. Further research should be done to compare the two or more types of jigs paired with VP using an iPod to ascertain which jig is likely to be more successful in the attainment of the criterion level on the packaging task.

Because the participants did considerably better in the morning than the afternoon, it may be beneficial to conduct more research during the time of day in which it is optimal to conduct a
research project. It was apparent to me that the morning was a better time to attempt the task, as most of the pairings of VP with the jig and the pairings of VP with SLP resulted in more independence during that time frame. Further research should be completed to determine which parts of the morning are better than others, as, in this study, the morning time frame included a four-hour span.

I decided to utilize the SLP procedure to assist in the delivery of the video content with Mike and Julia, as they both needed to have the task reinforced, and I needed to be able to ascertain when the participants were ready to complete the task correctly on an independent basis. The three-second delay that was utilized was enough time for the participants to show independence on a step or to be reinforced in the correct procedure by me with the controlling prompt; it was utilized because the participants were having difficulty using the VP with iPod by itself.

Another research possibility is a comparison study between SLP and other educational procedures utilized by educators, such as the progressive time delay procedure. In this procedure, the amount of time between the task direction and the controlling prompt increases until a specified delay interval is attained. Also, future research could compare the CTD procedure with the SLP procedure, in which the ideal response from the participant is to complete the step before a prompt is required.

The utilization of the iPod in VP for the purpose of completing a vocational packaging task was conducted within the confines of a typical special education classroom. The limitations that presented themselves have been previously discussed, and suggestions have been made for the use of a more clinical location to isolate the task and to remove all of the distractions that may have had an impact upon the results of this project. Another potential area of research is the
use of VP using an iPod in a community setting, where students with MoID are likely to require assistance in a vocational context, whether on community skills or in a post-public high school secondary setting.

Although the logistics of a study of this type would be difficult to establish and to implement, it would provide meaningful data for use with students with MoID when they are working in a community setting. The difficulty in implementing a study of this kind at the high school level is the length of time that would be required to fully implement the project. At the high school level, community-based vocational programs have been cut back, and currently, they are often only four to five hours a week in the community, which would make it difficult to have enough time to complete a project of this kind. The researcher would have to take the goals and objectives of the participants of the study into consideration and be able to address them within the context of the project, while also completing the project task. Considering the study goals and the goals and objectives of the students that would be impacted by a study of this nature, it would be difficult to find a situation that would provide enough repetition to obtain adequate meaningful data.

During my research, I had hoped for more support from the parents and guardian of the participants in the study. I can only conclude that if I had informed them more about the study and the process being used, they possibly would have been more supportive after the fact. I feel that further research needs to be completed to determine whether parent involvement would indeed have a positive influence upon participants using an iPod to complete vocational tasks with VP. Along with this would be trying to discern whether the level of support and attitude towards technology exhibited by the parents would have an influence upon their children’s ability to utilize an iPod to complete vocational tasks using VP.
Finally, utilization of the iPod with adults who have completed their public school education would be a logical next step in the progression. It stands to reason that the iPod would hold the same or a similar allure for the adults who are working in the community at a job site, and could also be a motivator for them as well. Introduction of this technology to adults with MoID may help job coaches as they work with their clients at vocational sites in the community, fostering independence and giving the job coach added time to work with clients in need.

**Summary**

The three participants in the current research project all demonstrated an increase in their ability to complete a simple packing project using VP provided by an Apple iPod. In all three cases, additional educational methodologies were needed to ensure success on the task and to prevent errors from occurring that would have jeopardized the successful implementation of the procedure. The iPod can be an excellent tool to introduce new tasks to students with MoID, but it cannot replace the teacher in the classroom. Once the participants in this study became familiar with the task, the VP on the iPod served as a tool to reinforce the skills needed to complete the packaging task. This indicates that the iPod can be utilized as a tool that can assist those with MoID in the completion of various vocational and functional life skills.

During this study, all of the participants seemed to enjoy using the device, and they liked the idea that they were chosen to be in it. The use of an iPod also appealed to them, as the participants enjoy emulating their general education peers who are often seen with iPods and iPhones during the school day. Through this study, I learned that video could be used as an effective tool to teach high school students with MoID, but one that requires a considerable time commitment.
It is also apparent that the use of this device is an excellent choice for a scaffolding activity, as it can be used for as much or as little support as a student requires in completing a vocational task. The goal of scaffolding is the same for students with MoID—that of increased independence. The benefit of increased independence for the high school student with MoID also allows the classroom teacher more time to work with others. The iPod has been shown to be a tool that special education teachers can utilize to bring their students into the classroom using the pedagogy of the 21st century.
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## APPENDIX A

**Participant:**

**Directions:** Code (+) if the step was completed independently and in sequential order. Code (-) if the step was not completed or the participant did not complete action independently. Afterwards, calculate the percent of independence (+).

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Observer Initials</th>
</tr>
</thead>
</table>

1. Get black plastic box and open

2. Count out 5 screws

3. Count out 5 bolts

4. Put bolts on screws & place in blue space inside the black box

5. Count out 5 red caps & place in yellow space inside the black box

6. Count out 10 yellow caps & place in green space inside the black box

7. Count out 5 white anchors & place in red space inside the black box

8. Count out 10 self-tap screws & place in orange space inside the black box

9. Count out 10 burgundy beads & place in purple space inside the black box

10. Close black plastic box

---

**Session #**

Baseline (B), Intervention (I), Maintenance (M):

| % of Independence |

---

**Key:** (+) **Correct** (initiate within 5 s, complete within 10 s; (-) **Incorrect** (no initiation within 5 s or not completed within 10 s)

**Incorrect Codes:**

(T): Incorrect behavioral response

(L): If error was latency error, no initiation within 5 s.

(D): step in TA not completed within 10s.

(S): Steps of the TA were performed out of order from teaching sequence.
APPENDIX B

Social Validity Survey (for parents/guardians of participants)
Circle the number that best reflects your feelings on each statement. Please comment (5) strongly agree, (4) agree, (3) neutral [neither agree nor disagree], (2) disagree, or (1) strongly disagree with each of the following statements:

A. I feel my son or daughter was successful in this project due to their use of an iPod.
   5  4  3  2  1

B. I see an improvement in his or her ability to complete a packaging task using the iPod.
   5  4  3  2  1

C. I feel there were additional advantages in using the technology besides completing a packaging task. (If so, please describe: ________________________________________  ________________________________________)
   5  4  3  2  1

D. I see value in using an iPod with my child’s daily activities.
   5  4  3  2  1

E. I saw my child using technology in general more since the beginning of this project.
   5  4  3  2  1

F. I feel that the iPod was a hindrance in my child’s ability to complete a packaging task.
   5  4  3  2  1

G. I feel that my child did not benefit from using an iPod in this project.
H. I will purchase an iPod for my child after seeing him or her use it in this project.

I. I feel that the iPod caused problems with my son or daughter.

J. I think my son or daughter did not improve their ability to packaging task using the iPod.

Comments:
APPENDIX C

Participant questionnaire:

1. Did you like using the iPod?

2. Was it easy to use the iPod?

3. Was it fun using the iPod?

4. Did you have trouble using the iPod?

5. Would you rather do your tasks with an iPod or without an iPod?

6. What else would you like to do with an iPod?
APPENDIX D

CONSENT FORM

USING VIDEO PROMPTING TO TEACH STUDENTS WITH MODERATE INTELLECTUAL DISABILITIES FUNCTIONAL LIFE SKILLS USING A PORTABLE VIDEO DELIVERY SYSTEM

John H. Newman
Liberty University
Department of Education

Your child is invited to be in a research study to determine whether an iPod can teach students with Moderate Intellectual Disabilities how to complete life skill tasks. Your child was selected as a possible participant because your son/daughter has State of Georgia eligibility for Moderate Intellectual Disabilities. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

I, John Newman, a special education teacher at the local high school, am conducting this study for a project to complete a degree at Liberty University, Lynchburg, Virginia.

Background Information:

The purpose of this study is:

**Research Question 1:** Will using video delivered on an Apple iPod® increase independence and teach students with moderate intellectual disabilities functional life skills and become a substitute for the teacher or a virtual job-coach in school and community-based vocational skills programs?

**Research Question 2:** Will the use of an iPod enable participants to stay on task to completion, compared to completing the task without the device?

**Research Question 3:** How will study participants operate an iPod in order to complete tasks and not allow them to be distracted from the tasks?

**Research Question 4:** Will the use of the iPod reduce the participants’ reliance on external adult assistance?

**Procedures:**

The research project will last approximately four to six weeks.

Each participant will be shown a step of the task of completing a packaging task and asked to replicate the step. I plan to videotape the entire process to provide a way to make sure that we can assert that each participant has completed or not completed a step in the task. The plan is to begin tentatively on August 12th of 2013, and be completed by October 31st of 2013, if not sooner.

**Risks and Benefits of being in the Study:**
The study has several risks:
The current study involves the normal risks that one would incur during everyday life and a
normal school day at the high school. In addition, the researcher may become privy to
information that triggers the mandatory reporting requirements for child abuse, child neglect,
elder abuse or intent to harm self or others. Both of these scenarios are unlikely, but need to be
presented to you as a possibility. In the event that you (or the researcher) notice an increase in
anxiety level attributed to the study, I will drop your child from participation.

The benefits to participation will be the ability of the participant to be able to complete a
vocational packaging task to add to their vocational skill set. In addition, the self-esteem of the
participants may be improved upon each success.

Compensation:

Your child will receive payment in the form of ‘bonus bucks,’ which can be spent in the
classroom store each Friday afternoon. Bonus bucks are given to the students as a reward for
completing tasks in the classroom on a daily basis.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not
include any information that will make it possible to identify a subject. Research records will be
stored securely and only researchers will have access to the records. All data collected for this
study will be secured in a locked file cabinet in a locked room at the high school. Any data taken
to my home residence will be kept upon a password-protected computer. Video recordings of
your child will be used for educational purposes only and to assure accuracy of reporting.
Access to these recordings will only be to the researchers involved in the study. The video
recordings will be kept for three years, and then erased. Your child’s confidentiality as part of
this study is assured.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to allow your child to
participate will not affect your or your child’s current or future relations with Liberty University
or with the high school. If you decide to allow your child to participate, your child is free to not
answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

I, John Newman, am the primary researcher in this project. You may ask me any questions you
have now. If you have questions later, you are encouraged to contact me at the high school
special education office or by phone. My e-mail address is:
<john_h_newman@gwinnett.k12.ga.us>. In addition, you may contact Dr. Deanna Keith who is
my faculty advisor at Liberty University. Dr. Keith’s e-mail address is: <dlkeith@liberty.edu>.
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at irb@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child to participate in the study.

_____ I ________________________________ give my consent to have my child audio/video recorded during the course of this research study.

_____ I ________________________________ do not give my consent to have my child audio/video recorded during the course of this research study.

Signature of parent or guardian: __________________________ Date: _____________

(If minors are involved)

Signature of Investigator: ______________________________ Date: ______________

IRB Code Numbers: 1505.011813

IRB Expiration Date: January 18, 2014
APPENDIX E

Assent of Child to Participate in a Research Study

What is the name of the study and who is doing the study?
The study is called, Using Video Prompting to Teach Students with Moderate Intellectual Disabilities Functional Life Skills Using a Portable Video Delivery System. Mr. John Newman will do the study.

Why are we doing this study?
We are interested in studying to learn how to complete a vocational task using an iPod.

Why are we asking you to be in this study?
You are being asked to be in this research study because one of the tasks you need to learn is how to be successful on vocational tasks.

If you agree, what will happen?
If you are in this study you will be able to earn bonus bucks and use them to buy items you like from the classroom store.

Do you have to be in this study?
No, you do not have to be in this study. If you want to be in this study, then tell the researcher. If you don’t want to, it’s OK to say no. The researcher will not be angry. You can say yes now and change your mind later. It’s up to you.

Do you have any questions?
You can ask questions any time. You can ask now. You can ask later. You can talk to the researcher. If you do not understand something, please ask the researcher to explain it to you again.

Signing your name below means that you want to be in the study.

Signature of Child

Date

John H. Newman
e-mail address: John_H_Newman@gwinnett.k12.ga.us
Faculty Advisor: Dr. Deanna L. Keith
e-mail address: dlkeith@liberty.edu

Liberty University Institutional Review Board,
1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at irb@liberty.edu.
APPENDIX F

Parent/Guardian Survey Responses

<table>
<thead>
<tr>
<th></th>
<th>Carla</th>
<th>Julia</th>
<th>Mike</th>
<th>SUM</th>
<th>MEAN</th>
<th>RANGE</th>
<th>MODE</th>
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<td>4</td>
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<tr>
<td>B.</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>3.333</td>
<td>1</td>
<td>3</td>
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<tr>
<td>C.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>4</td>
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<tr>
<td>D.</td>
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<td>3</td>
<td>2,3,5</td>
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<tr>
<td>E.</td>
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<td>2</td>
<td>4</td>
<td>10</td>
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<td>2</td>
<td>4</td>
</tr>
<tr>
<td>F.</td>
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<tr>
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<td>3</td>
<td>6</td>
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<td>1</td>
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</tr>
<tr>
<td>H.</td>
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<td>1</td>
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<td>2.333</td>
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<td>3</td>
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<tr>
<td>I.</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1.667</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>J.</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>2.667</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
Dear Parents,

I wanted to drop you a note to let you know that I plan on starting the project as soon as the students have had a chance to review their ability to turn on an iPod. I wanted to let you know that I have had to change the protocol of the project. This means that your children will not be making a peanut butter and jelly sandwich with the use of an iPod, but will instead be completing a packaging task. The main reason for this change is that I will now be more able to determine correct or incorrect actions of your child during the project. It will also be less confusing to them, since the making of a sandwich would force me to mark them incorrect for items that they were able to complete, but not in what I consider to be the correct order. Please let me know if you have any questions and I will be happy to answer them as quickly as I can!

John
January 18, 2013

John H. Newman
IRB Approval 1505.011813: Using Video Prompting to Teach Students with Moderate Intellectual Disabilities Functional Life Skills Using a Portable Video Delivery System

Dear John,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB and we wish you well with your research project.

Fernando Garzon, Psy.D. Professor, IRB Chair Counseling

(434) 592-4054
APPENDIX I

Wednesday, July 2, 2014 at 1:07:14 PM Eastern Daylight Time

Subject: IRB Change in Protocol Approval: IRB Approval 1505.011813: Using Video Prompting to Teach Students with Moderate Intellectual Disabilities Functional Life Skills Using a Portable Video Delivery System

Date: Monday, July 29, 2013 at 1:29:59 PM Eastern Daylight Time

From: IRB, IRB

To: Newman, John

CC: IRB, IRB, Keith, Deanna Lyn (School of Education), Garzon, Fernando (Center for Counseling and Family Studies)

Good Afternoon John,

This email is to inform you that your request to change the participants' task from making a peanut butter and jelly sandwich to completing a vocational packaging job due to your belief that incorporating a task that must be done in order will contribute to the quality of your data has been approved.

Thank you for complying with the IRB requirements for making changes to your approved study. Please do not hesitate to contact us with any questions.

We wish you well as you continue with your research.

Best,

G. Michele Baker, M.A.
Institutional Review Board Coordinator
The Graduate School

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