Ucanfnsh: A Virtual Learning Environment Created To Engage And Inspire Self-determination In Middle School Students With Learnin

2009

Kara Rosenblatt
University of Central Florida

Find similar works at: https://stars.library.ucf.edu/etd

University of Central Florida Libraries http://library.ucf.edu

Part of the Education Commons

STARS Citation

https://stars.library.ucf.edu/etd/3842

This Doctoral Dissertation (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of STARS. For more information, please contact lee.dotson@ucf.edu.
UCANFNSH: A VIRTUAL LEARNING ENVIRONMENT CREATED TO ENGAGE AND INSPIRE SELF-DETERMINATION IN MIDDLE SCHOOL STUDENTS WITH LEARNING DISABILITIES

by

KARA ROSENBLATT
B.S. Florida State University, 2000
M.S. Florida State University, 2001

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in the Department of Exceptional Education in the College of Education at the University of Central Florida
Orlando, Florida

Summer Term
2009

Major Professors: Lee Cross and Lisa A. Dieker
ABSTRACT

This study explored the efficacy of using a virtual college campus to teach self-determination skills to middle school students with learning disabilities. Teaching self-determination skills is considered best practice for students with disabilities as they transition into adulthood. Three measures, a self-determination knowledge measurement scale, a behavior rubric, and 15 multiple choice questions measured self-determination knowledge and skill application ability with 71 middle school students with learning disabilities.

The measures were used to determine whether the students who learned about self-determination skills in the virtual college setting during one training session displayed more knowledge and application of these skills than students who learned about and applied these skills in the natural setting. Empirical data revealed that overall, students made significant gains in their capacity to be self-determined in both natural and virtual settings. Students who participated in self-determination skills training in the virtual college setting displayed significantly more self-determination skills knowledge than the two control groups. Anecdotal evidence suggested that the students who learned in the virtual learning environment were also able to generalize these skills to both home and school settings after only one training session. Recommendations were made for future studies utilizing virtual learning environments to teach students with disabilities self-determination skills and increasing the use of digital media in teacher preparation programs.
ACKNOWLEDGMENTS

I am so grateful for all of the students who participated in this study. I am especially thankful for the 16 students who agreed to participate in the focus groups. Their insight allowed me to see the purpose behind the study, but beyond that, they reminded why I chose this path. In addition to the students, I would like to thank all of the principals, and staffing specialists who gave me the opportunity to work with their students. I am so grateful to Marilee Amodt and Jude Cepero who were especially receptive to being a part of the study.

This project would not have been possible without the help of my co-chairs Dr. Cross and Dr. Dieker. Both of you have been instrumental throughout this process for me. Your insights and mentoring have helped me see the silver lining in many situations and have helped me understand and appreciate different perspectives. Your passion for this field has inspired me to accomplish so many things I never would have imagined three years ago. To my committee member Dr. Bricout, I am so grateful that you agreed to be on my committee. It has been wonderful to have the perspective and insight you have been able to provide. Thank you for your guidance through this process and the advice you have given me during my own transition to a junior faculty member. Thank you to Dr. Rebecca Hines for providing me with a completely different perspective on
technology and teaching. You have taught me to see that there are possibilities in any situation if you approach them with confidence and originality.

My experience would not have been the same without my cohort. Beyond my appreciation of the three years we spent together, I am very grateful for everything that I learned from you all and hope to continue to be a part of your lives. Thank you to my adopted cohort, I am looking forward to watching you all come through this process. I would also like to thank the Toni Jennings Exceptional Education Institute for funding this project and their interest in the progress and results of the study. To my colleagues who assisted me with this work through the process, especially Jaque Davison, thank you all for your patience, hard work and dedication. To my sister, Erika Carter, so much of what I know has been a result of watching and learning from you. You were my first teacher, and in many ways, you are still the person I look to for guidance, encouragement, and approval. I hope that you know how much I appreciate all of your help, especially this summer, not only with reading and rating, but also with Ellie, Penny and now Abel. I could not have made it here without you! And finally, a big thank you to my grandparents Abe and Eleanor Rosenblatt; my aunt, Helen Poritz; my extended family, Helene, Jim, and Alana Cavanaugh, the Reeds, the Hammonds, Angela Dorr; and my friends and family who encouraged me to pursue my goal and took an interest in my progress and in this project.
# TABLE OF CONTENTS

ABSTRACT .................................................................................................................. III

ACKNOWLEDGMENTS ................................................................................................. IV

TABLE OF CONTENTS ............................................................................................... VI

CHAPTER ONE: INTRODUCTION .................................................................................. 1
  Background: Need for the Study ............................................................................. 1
  Statement of the Problem ......................................................................................... 2
  Purpose of the Study ............................................................................................... 4
  Research Questions ................................................................................................. 4
  Definition of Terms ................................................................................................. 5
  Research Design .................................................................................................... 12
  Data Collection Procedures ................................................................................... 12
  Data Analysis ......................................................................................................... 14
  Limitations ............................................................................................................. 15

CHAPTER TWO: LITERATURE REVIEW ..................................................................... 17
  Chapter Overview .................................................................................................. 17
  Transition ............................................................................................................... 17
  History and Purpose of Transition ....................................................................... 17
  Legal Aspects of Section 504 and the ADA ............................................................ 20
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Determination and IDEA</td>
<td>23</td>
</tr>
<tr>
<td>Supports and Services in the Secondary Setting</td>
<td>24</td>
</tr>
<tr>
<td>Supports in the Postsecondary Environment</td>
<td>26</td>
</tr>
<tr>
<td>Self-Determination and Transition Aged Youth</td>
<td>31</td>
</tr>
<tr>
<td>Skills for Transitioning from Secondary to Postsecondary Settings</td>
<td>31</td>
</tr>
<tr>
<td>Self-Determination for Important Factors</td>
<td>32</td>
</tr>
<tr>
<td>Self-Determination</td>
<td>36</td>
</tr>
<tr>
<td>Commonalities between the Models</td>
<td>36</td>
</tr>
<tr>
<td>The Construct of Self-Determination</td>
<td>38</td>
</tr>
<tr>
<td>Additional Models for Teaching Self-Determination Skills</td>
<td>39</td>
</tr>
<tr>
<td>Additional Models of Self-Determination</td>
<td>43</td>
</tr>
<tr>
<td>Whose Future is it Anyway?</td>
<td>44</td>
</tr>
<tr>
<td>Wehmeyer’s Four Characteristics of Self-Determination Skills</td>
<td>45</td>
</tr>
<tr>
<td>Self-Determination and the potential implications of technology</td>
<td>48</td>
</tr>
<tr>
<td>Characteristics of Digital Natives</td>
<td>48</td>
</tr>
<tr>
<td>Self-Determination Skills and Virtual Learning Environments</td>
<td>49</td>
</tr>
<tr>
<td>Transfer of Information within the Virtual Learning Environment</td>
<td>50</td>
</tr>
<tr>
<td>Generalization to Real World-Performance</td>
<td>52</td>
</tr>
<tr>
<td>Post-Secondary Outcomes</td>
<td>54</td>
</tr>
<tr>
<td>Employment for Adults with Learning Disabilities</td>
<td>54</td>
</tr>
<tr>
<td>Present Transition Outcomes</td>
<td>55</td>
</tr>
</tbody>
</table>
CHAPTER THREE: METHODOLOGY ........................................................................... 58

Introduction .............................................................................................................. 58
Research Questions .................................................................................................. 59
  General Research Hypothesis ................................................................................ 59
Setting ....................................................................................................................... 60
Participants ................................................................................................................ 61
Sampling .................................................................................................................... 63
Instrumentation ......................................................................................................... 65
  AW Development .................................................................................................... 65
  Greenhat Design Guidelines .................................................................................... 66
  Whose Future is it Anyway? .................................................................................... 66
  Self-Determination Skills Modules ........................................................................ 69
The AIR Self-Determination Scale ............................................................................ 73
  Self-Determination Skills Behavior Rubric .............................................................. 74
  SDS Module Quick Checks .................................................................................... 75
Design Validity ............................................................................................................ 76
  Focus Group Questions ........................................................................................... 77
Research Design ......................................................................................................... 77
  Research Timeline ................................................................................................ 78
Procedures .................................................................................................................. 79
Focus Group Participants ................................................................. 125
Focus Group Themes ................................................................. 129
Learning in the VLE ................................................................. 130
Skill Generalization ................................................................. 130
Individualization ................................................................. 132
Suggestions for Improvement ......................................................... 132
Greenhat Design Guidelines ......................................................... 133
Summary .................................................................................. 134

CHAPTER FIVE: DISCUSSION ......................................................... 136

Purpose of the Study .................................................................. 136
Interpretation of Research Questions ............................................. 138
Research Question 1 ................................................................. 138
Research Question 2 ................................................................. 142
Limitations ............................................................................... 145
Recommendations for Future Practice ........................................... 147
Future research ....................................................................... 150

Virtual Learning Environments .................................................... 150
Self-Determination Skills ............................................................ 151
Implications for Future Teacher Preparation ................................. 152
Self-Determination Skills ............................................................ 153
Virtual Learning Environments .................................................... 156

x
The Future of UCanFnsh ................................................................. 157

Conclusions .......................................................................................158

APPENDIX A: AIR SELF-DETERMINATION SCALE ............................. 161
APPENDIX B: SELF-DETERMINATION SKILLS MODULES .................... 171
APPENDIX C: TREATMENT FIDELITY CHECKLISTS .................................. 185
APPENDIX D: SELF-DETERMINATION SKILLS BEHAVIOR RUBRIC ........... 189
APPENDIX E: FOCUS GROUP QUESTIONS ........................................... 192
APPENDIX F: GREENHAT DESIGN GUIDELINES ................................... 195
APPENDIX G: UNIVERSITY OF CENTRAL FLORIDA INSTITUTIONAL REVIEW
BOARD APPROVAL ............................................................................. 198
APPENDIX H: ORANGE COUNTY PUBLIC SCHOOLS RESEARCH REQUEST
APPROVAL .......................................................................................... 200
APPENDIX I: UCANFNSH INSTRUCTIONS SHEET .................................. 202
APPENDIX J: SELF-DETERMINATION SKILLS CHECK UP QUESTIONS......... 207
APPENDIX K: VOLUNTEER NOTES ..................................................... 211
APPENDIX L: UCANFNSH COLLEGE APPLICATION ............................... 214
APPENDIX M: UCANFNSH LETTER OF ACCEPTANCE ............................. 219
APPENDIX N: SELF-IDENTIFICATION FORM ......................................... 221
APPENDIX O: BASIC DEMOGRAPHICS SHEET ...................................... 224
APPENDIX P: CAREER LIST ................................................................ 229
APPENDIX Q: COURSE REGISTRATION LIST EXAMPLE .......................... 232
APPENDIX R: SELF-IDENTIFICATION EMAIL ............................................................... 236
APPENDIX S: POWERPOINT GROUP INSTRUCTIONS ............................................. 238
APPENDIX T: NO INTERVENTION GROUP INSTRUCTIONS .............................. 241
APPENDIX U: PARENT CONSENT ........................................................................ 243
APPENDIX V: STUDENT ASSENT ................................................................. 256
LIST OF REFERENCES ...................................................................................... 259
LIST OF FIGURES

Figure 1 UCanFnh Orientation Point ................................................................. 81
Figure 2 Jennings Hall ......................................................................................... 82
Figure 3 Jennings Hall Lobby ............................................................................. 82
Figure 4 Module Station Inside Jennings Hall .................................................. 84
Figure 5 UCanFnh College Campus Buildings ................................................. 86
Figure 6 Registrar's Office ................................................................................. 87
Figure 7 Student Resource Center ..................................................................... 89
Figure 8 Career List Activity .............................................................................. 90
Figure 9 Seven College Welcome Center ......................................................... 90
Figure 10 UCanFnh Colleges ............................................................................ 92
Figure 11 Career Options in Building of Seven Colleges ................................. 92
Figure 12 Self-Identification Email .................................................................... 94
LIST OF TABLES

Table 1 School Demographics ........................................................................................................... 61
Table 2 Data Collection Sessions ....................................................................................................... 64
Table 3 Whose Future is it Anyway Themes ..................................................................................... 67
Table 4 Group Activities .................................................................................................................... 80
Table 5 Self-Determination Modules ................................................................................................. 96
Table 6 Fidelity of Treatment ........................................................................................................... 102
Table 7 Final Participant Demographics ......................................................................................... 110
Table 8 Sample and School Demographics ...................................................................................... 112
Table 9 Task Frequency Scores ........................................................................................................ 115
Table 10 SDS Module Quick Check Scores ...................................................................................... 116
Table 11 Multivariate Tests ............................................................................................................... 118
Table 12 AIR Self-Determination Scale Scores ................................................................................. 119
Table 13 Task Completion Rates ...................................................................................................... 123
Table 14 Focus Group Demographics ............................................................................................... 127
CHAPTER ONE: INTRODUCTION

Background: Need for the Study

Students with learning disabilities (LD) often are unprepared academically, socially, or emotionally to meet the needs and expectations of life after high school (Finn & Kohler, 2009; Gregg, 2007; Johnson, Stodden, Emanuel, Luecking, & Mack, 2002; Mellard, 2005; Scanlon et al., 2008; Sitlington, 2003). Despite monetary and social resources allocated by federal and state governments to aid students with LD, this population continues to face substantial barriers to postsecondary success (Gregg, 2007; National Council on Disability, 2003; Wagner, Newman, Cameto, Garza, & Levine, 2005). For example, students with LD drop out of school at a rate 50 to 66% higher than their non-disabled peers, and their post-secondary enrollment rates are about one-tenth of their non-disabled peers (Gregg, 2007; U.S. General Accounting Office [GAO], 2003). Adults with LD represent between 20 and 60% of the population who access federal welfare programs or aid (Burgstahler, 2003; Gregg, 2007) and are more likely to serve time in prison or jail than their non-disabled peers (Burrell & Warboys, 2000; Christle, Jolivette, & Nelson, 2000; National Council on Disability, 2003; Stenhjem, 2005).

Despite these dismal statistics, school staff and administrators rarely deviate from outdated and unreliable methods of preparing students with LD for the transition from high school to adult life (Gregg, 2007; Trainor, 2005). Further, few Individual Education Plans (IEPs) or Individual Transition Plans (ITPs) reflect unique solutions to overcoming the barriers that exist for students as they transition from high school to postsecondary institutions (Trainor,
Research on the barriers to successful transitions from high school to college indicates several reasons for failed transitions, including socio-economic status and sociocultural factors. However, these factors alone should not disqualify students with LD from making successful transitions to postsecondary environments (Oesterreich & Knight, 2008; Scanlon et al., 2008; Stodden, Conway, & Chang, 2003; Zhang & Benz, 2006).

Competencies that all college-bound students should possess are those that are necessary in postsecondary academic environments and the work place; such as academic skills, critical thinking skills, sense of individual responsibility, self-esteem, self-management, self-efficacy, and self-determination (Madaus, 2006, 2008; National Council on Disability, 2003; Scanlon et al., 2008; Sitlington, 2003; Stodden, Jones, & Chang, 2002). However, the majority of students with LD are not exposed to a rigorous curriculum that provides these high-level skills. Additionally, very few high school students with LD possess the basic self-determination skills (SDS) that are essential to successful entry and exit in postsecondary environments (Chambers, Rabren, & Dunn, 2008; Finn & Kohler, 2009; Stodden et al.). Without these critical SDS, the likelihood of success in all areas of the postsecondary setting is greatly diminished (Chambers et al., 2008; Janiga & Costenbader, 2002; Zhang & Benz, 2006).

Statement of the Problem

Interventions that are individualized and designed to address the multitude of experiences a person may have within his or her school, home, and community can potentially impact the movement from high school to postsecondary environments (Eisenman, 2007). Research has
indicated that the occurrences of successful transitions to postsecondary settings increase when students with disabilities are taught, possess, and apply self-determination skills (SDS) (Eisenman, 2007; Zhang & Benz, 2006). Factors that determine student success at mastering SDS are inextricably tied to the classroom teacher and environment in which the importance of SDS are taught through the use of authentic tasks in late elementary to early middle school (Bassett & Kochar-Bryant, 2006; Zhang & Benz, 2006). Unfortunately, schools often rely on traditional methods that have been less than successful when teaching students with LD transition skills. Schools also begin the transition process at age 16, when students with LD are at greatest risk of school failure (Zhang & Benz, 2006).

In this study, participants were taught SDS in a virtual learning environment (VLE). A simulated college campus was created within the VLE. Students with LD learned seven components of SDS: (a) decision-making, (b) organizational/self-management, (c) self-advocacy, (d) rights and responsibilities, (e) autonomy, (f) self-efficacy, and (g) disability awareness/understanding. After being involved in the brief SDS lesson, the students with LD were asked to perform authentic tasks to demonstrate knowledge and application of skills in the VLE. The researcher investigated whether the participants used newly acquired SDS knowledge in a simulated college environment and showed successful skill application and generalization. The ultimate outcome of presenting students with LD a VLE was to demonstrate that this population can learn critical SDS skills through an innovative approach proven to increase overall quality of life beyond the school setting (Bassett & Kochar-Bryant, 2006; Brooks, Rose, Attree, & Elliot-Square, 2002; Cobb, 2007; Gregg, 2007; Mellard, 2005; Morocco, Aguilar,
Clay, Bringham, & Zigmond, 2006; Scanlon et al., 2008; Schmidt, Laffey, Stichter, Goggins, & Schmidt, 2008; Wolfe & Lee, 2007).

**Purpose of the Study**

The purpose of this research was to add to the knowledge base regarding the impact of SDS on students with LD to make successful transitions from high school to postsecondary environments. Another potential benefit of this study was to provide additional evidence supporting the possibility that students with LD can learn new material and apply newly acquired knowledge in a VLE. Virtual learning environments have been proven to provide students with disabilities with opportunities to actively participate in learning while controlling the learning process (Brooks et al., 2002; Cobb, 2007) and acquiring specific metacognitive skills (Brooks et al.; Cobb, 2007; Rose, Attree, Brooks, Parslow, Penn, & Ambhaipahan, 2000). The hypothesized results of this study were that students with LD would be able to learn SDS in the VLE and demonstrate these skills through application and generalization of targeted, specific tasks.

**Research Questions**

The study sought to answer the following research questions:

1. Do middle school students (MSS) identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment demonstrate significantly more knowledge of self-determination skills than students identified
with learning disabilities who receive self-determination skills training via PowerPoint or students with learning disabilities who do not receive SDS training?

2. Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment have higher scores on the *AIR Self-Determination Scale* than students with learning disabilities who receive self-determination skills instruction via PowerPoint or students with learning disabilities who do not receive any self-determination skills training?

The overall purpose of the research study was to determine the effect of learning SDS in a VLE. The research questions measured how a sample group of middle school students with LD generalize and apply SDS in a simulated college environment created in a VLE. Question one measured the student’s ability to master the application of self-determined behavior in a virtual college setting. Question two compared the pre- and post-test scores of a reliable and valid measure of self-determination. The means of the scores on the measurement were compared between the group who received self-determination skill instruction in the VLE, the group who received instruction via PowerPoint presentation, and the group who did not receive self-determination skill instruction. These multiple measures provided foundational information on the potential influence of VLE on students with LD in relation to increasing their SDS.

**Definition of Terms**

*Activeworlds*. Activeworlds (AW) is a multi-user virtual environment desktop software system that is Windows based and is accessible via the Internet (Hudson-Smith, 2002;
Schroeder, Huxor & Smith, 2001). The virtual citizens of AW have created all of the interactive environments. They build three-dimensional objects, such as houses, shops, and automobiles. In addition, avatars in AW have the capability of walking, flying, and teleporting in order to go to a specific location or world. The users of AW exclusively create all environments. Currently, there are over 1,000 worlds and more than 360,000 users. Participants, or users, are referred to as citizens and are represented by avatars. Furthermore, avatars communicate with each other through synchronous chat.

**Americans with Disabilities Act.** The Americans with Disabilities Act (ADA) is a federal civil rights law that guarantees equal rights and opportunities for people with disabilities. People with disabilities are protected under ADA in employment, state government, local government, public places, commercial properties, transportation, telecommunications, and the United States Congress. The ADA defines a person with a disability as:

a person who has a physical or mental impairment that substantially limits one or more life activities, a person who has a history or record of such impairment, or a person who is perceived by others as having such impairment.


**Authentic learning/tasks.** Authentic learning/tasks provide students with opportunities to be engaged in purposeful learning that has a direct link to relevant activities or tasks that take place outside of the classroom. Examples of authentic learning/tasks include students completing a job application or calculating interest to complete a budget (Bassett & Kochar-Bryant, 2006).
Avatars. An avatar in AW is a graphical icon that represents a user, or citizen (Hudson-Smith, 2002; Talamo & Ligorio, 2000). Avatars communicate with each other through synchronous chat.

College enrollment. College enrollment refers to traditional or non-traditional aged students who are enrolled either full-time (12 credit hours or more) or part-time (9 hours or less) in a two-year community college or a four-year college or university.

Digital Immigrants. Digital immigrants are adults over the age of 28, born before 1980 (Prensky, 2001). Many digital immigrants did not grow up with the digital technology that is currently available. As such, they have had to adapt to understanding and using technology (Prensky, 2001). Prensky (2005) likens this group of individuals to immigrants in a new country where new languages and customs must be learned in order to assimilate. In education, digital immigrants typically use outdated, non-technological methods to teach digital natives.

Digital Native. Digital natives are people who have been exposed to technology from a very early age. Typically, digital natives are people born after 1980 (Prensky, 2005; Royer, 2007). Digital natives have been exposed to technology from a very early age. Due to early exposure, this group has characteristics that differentiate them from previous generations, including: (1) competitiveness, (2) willingness to collaborate, (3) ability to multi-task, (4) hypertext minds and non-linear thought processes, (5) impatience, expectations of immediate feedback or responses, (6) ability to learn quickly, (7) creativity and inquisitiveness, (8) dependence on networked environments, (9) becoming easily disinterested, and (10) expectations of technological connectivity everywhere (Prensky, 2005; Royer, 2007; Windham, 2005).
Prensky further explained that “This generation has spent 10,000 hours with video games; sent or received 200,000 emails; spent 20,000 hours watching television and 10,000 hours on the cell phone (2005, pp.61-64).

**Learning Disabilities.** According to the Individuals with Disabilities Improvement Act of 2004 (IDEA), the definition of a learning disability is:

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disabilities does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural or economic disadvantage (Part 300 A 300.8 c).

**Individual Education Plan.** An Individualized Education Plan (IEP) is:

A written statement for each child with a disability that is developed, reviewed and revised in a meeting…that must include: (a) A statement of the child’s present levels of academic achievement and functional performance. (B) A statement of measureable annual goals, including academic and functional goals designed to: (1) meet the child’s needs that result from the child’s disability to enable the child to be involved in and make progress in the general education curriculum; and (2) meet each of the child’s other educational needs that result from the child’s disability; …A description of (1) how the child’s progress toward meeting the annual goals described will be measured; and (2) when periodic reports on the progress the child is making toward meeting the annual goals will be provided; A statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child, or on behalf of the child.; A statement of any individual appropriate accommodations that are necessary to measure the academic achievement and performance on State and district wide assessments. ([34 CFR 300.320(a)] [20 U.S.C. 1414(d)(1)(A)(i)]

8
**Individual Transition Plan.** An Individual Transition Plan (ITP) is a tool that is used as a framework to guide students, teachers, support personnel, and parents for the student’s life after high school. An ITP is typically developed for students beginning at age 16 or as deemed necessary by the IEP team. An ITP involves the use of a person-centered approach to identify the long and short-term goals and objectives for a child with a disability. Plans for the future, including education, involvement with the community, social outlets, and relationships, as well as student recreation and leisure activities are included in the ITP. An ITP is designed to highlight the student’s strengths, needs, and interests and allows the ITP team to prioritize planning activities and promote interagency collaboration as necessary. Usually, ITPs include timelines, dates, and people responsible for actions leading to goal achievement, as well as specification of necessary supports, accommodations, and services for the student as he or she transitions from high school to post-high school life (Johnson et al., 2002; Kohler & Field, 2003; Madaus, 2006).

**Middle school student.** For the purposes of this study, middle school students are adolescents with learning disabilities who are between the ages of 11 and 15 who are in grades 6-8.

**Section 504.** Section 504 is a civil rights law that protects individuals with disabilities by stating:

that no qualified individual with a disability in the United States of America shall be excluded from, denied the benefits of, or be subjected to discrimination under any program or activity that receives Federal financial assistance or is conducted by and Executive agency or the United States Postal Service.” (34 C.F.R. § 104.33. Section 504 of the Rehabilitation Act of 1973)
Self-determination. Self-determination theory states that a student’s success is influenced by his or her belief in his or her academic ability and level of autonomy (Deci, Vallerand, Pelletier & Ryan, 1991; Wehmeyer & Schwartz, 1998). Students who practice making choices, decision-making, problem solving, setting and attaining goals, self-advocacy skills, self-efficacy, self-awareness, understanding, evaluation, and reinforcement are learning self-determination (Zhang, Wehmeyer, & Chen, 2005). The self-determined student is able to learn from an incident, make necessary corrections, and finally, take actions that will lead him or her on the path to goal actualization (Mithaug, Mithaug, Agran, Martin, & Wehmeyer, 2003). Recently, Wehmeyer (2007) clarified his definition of self-determination. The new, refined definition states that self-determination refers to “volitional actions that enable one to act as the primary causal agent in one’s life and to maintain or improve one’s quality of life” (2007, p. 117).

Transition. For the purposes of this study, transition is the process of high school students with learning disabilities who complete regular diploma, preparatory, or regular diploma coursework and who are moving from a secondary educational environment to a postsecondary educational environment (Mellard, 2005)

Transition services. IDEA 2004 states that transition services are:

A coordinated set of activities for a child with a disability that are to be in effect when the child turn 16, or younger if deemed appropriate by the IEP team, and annually thereafter, services that —
(A) Is [SIC] designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child’s movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation;
(B) Based on the individual child’s needs, taking into account the child’s strengths, preferences, and interests; and
(C) Includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation.” (IDEA 2004, Title I, (A) (602)(34))

**Virtual Learning Environments.** Virtual environments are computer-generated, three-dimensional environments designed to react in real time to the actions and/or motions of the individuals within the environment (Cobb, 2007; Schmidt et al., 2008). Educators and/or trainers are able to control aspects of the environment, including actions, structure, style of evaluations, and feedback (Rose et al., 2000). Common characteristics of virtual environments used for education are: (a) involvement (the user experiences a feeling of inclusion or presence in the VLE), (b) interactivity (the environment responds in real time to the actions and movements of the user), and (c) internal logic (the VLE is morally aligned with the morals and beliefs of the real world) (Cobb, 2007). Students with disabilities who are involved in virtual experiences are able to manipulate features of the real world. They have the ability to emphasize or transform relationships and alter or remove objects to meet their individual needs (Cobb, 2007; Schmidt et al.). Additionally, VLEs provide students with disabilities opportunities to have educational experiences that include meaningful application of interaction and activities (Cobb, 2007; Rose et al.). This application is particularly helpful to students with disabilities because they tend to be concrete thinkers and find it difficult to understand abstract ideas or representations. (Cobb, 2007; Royer, 2007).
Research Design

This study focused on providing students with LD a VLE where they were introduced to the concept of self-determination and taught seven SDS present in most successful college students with LD. Students were randomly assigned to one of three groups. Quantitative methods were used to determine the effects of self-determination knowledge and application of SDS (Durlak et al., 1994). Successful applications of SDS were determined through the completion of a set of tasks researchers have found successful college students with LD use. Participants took pre- and post-test measurements. Students in all three groups were observed to determine if they completed tasks that required the application of SDS. All tasks were behaviors that successful college students with LD exhibit. Students in the Active Worlds (AW) Group were observed in the VLE, while students in the PowerPoint Group (PPT) and the No Intervention Group (NI) were observed in the real world, or classroom, environment. Additionally, several students from the AW Group and the PPT Group were chosen to participate in focus groups. Focus group questions were related to students’ experiences with technology, postsecondary goals, readiness for transition to college, and perceptions of how self-determination skills impact the transition from high school to college.

Data Collection Procedures

After brief introductions by the volunteers and the researcher, participants in all three groups took the AIR Self-Determination Scale [(Wolman, Campeau, DuBois, Mithaug, & Stolarski, 1994) (see Appendix A)]. The AIR Self-Determination Scale (Wolman et al., 1994) is
designed to measure a student’s level of self-determination. In addition, the data can be used to create self-determination goals and objectives to include in the IEP or ITP. The AIR Self-Determination Scale is an effective measurement tool for students whose grades and ages range from kindergarten through adulthood (Wolman et al.). Therefore, the researcher has determined that this scale effectively assesses levels of self-determination in middle school students whose ages range from 11 to 14.

A rubric was developed by the researcher to measure participant behavior and application of SDS. The study rubric is based on a socially valid instrument developed in 1994 by Durlak, Rose, and Bursuck. Their instrument was developed through an extensive review of literature on important skills for students with LD transitioning to higher education. The original instrument included four types of skills: (a) recognition of academic and social strengths and weaknesses which recompense deficits; (b) competence to express their strengths and weaknesses to necessary individuals; (c) knowledge of necessary services and accommodations; and (d) competence to inquire about information, assistance, and accommodations as needed. Further, 15 experts validated the original instrument through social validation procedures developed by Kazdin (1977). The rubric created for the study uses the same four skill types but is updated for use with digital immigrants in the VLE. The purpose of this rubric was to examine the effectiveness of the self-determination skills (SDS) instruction on middle school students with LD when they were asked to complete a set of tasks to demonstrate their understanding and application of skills essential for transition to postsecondary settings (see Appendix D).
Social validity was established by selecting participants in the AW Group and the PPT Group to participate in follow-up interviews (see Appendix E). Questions and subsequent discussions revolved around the participants’ experiences in the VLE and their reactions to the strategies or skill applications they used to demonstrate skill acquisition. Further, participants were asked to explain their current level of comfort with technology, including computers, the Internet, virtual gaming, and previous knowledge and usage of SDS. All interviews were conducted by the researcher and were recorded with a digital and video recorder. Once the interviews were transcribed, the researcher identified overall categories or themes and sub-themes. The researcher recruited an independent party to review the interview tapes and categories/themes and subthemes. Together, the researcher and independent rater created codes for each significant quotation. All coding was completed by hand, and the coded groups were organized to allow for analysis of results. Finally, focus group notes and demographic information were reviewed and compared to the interview data for accuracy.

Data Analysis

After data were collected, the information was entered into Statistical Package for the Social Sciences (SPSS). First, a Multiple Analysis of Variance was completed to determine if any differences existed between groups’ mean scores on the AIR Self-Determination Skills Scale (Wolman et al., 1994). Next, a Kruskal-Wallis test measured the frequency that the individual groups scored above the median on the Self-Determination Skills Behavior Rubric. The level of significance was .05, indicating the likelihood of rejecting the null hypothesis when the null
hypothesis is true and provides stronger evidence of statistical significance is approximately one in 20.

Limitations

This study was limited to exploring the impact of using a virtual learning environment to teach middle school students with learning disabilities about self-determination skills. Over the past two decades, the concept of self-determination has been linked with successful transitions to adulthood for students with disabilities. Self-determination skills teach students with LD how to become involved in planning for their future and how to become self-advocates. However, self-determination skills are only one of several barriers that limit students with learning disabilities from assuming successful adult roles. Although research indicates that students with disabilities who possess self-determination skills have more success in breaking down the remaining barriers, self-determination skills will not compensate for less than adequate academic preparation or others’ perceptions and treatment of students with LD on the college campus.

The issue of diversity also was a limitation of this study. Participants were recruited from the surrounding areas of the university. Participant demographics were expected to be similar to the demographics of the area. This study did not address how self-determination skills were able to impact students who are traditionally over represented in special education and underrepresented on college campuses. Additionally, the results of this study did not address the impact of socio-economic status and/or limited exposure to technology on participants’ ability to learn in a virtual learning environment.
Further, due to the number of participants that were needed to reach a proper level of statistical power, the participants dropped out or did not complete all of the tasks were also a limit of the study. Treatment fidelity also was a limitation of this study, as the study was replicated several times to ensure the proper study population. Additionally, the reliability of the treatment was dependent on the volunteer’s fidelity of implementation on the issues that dealt with academic limitations.
CHAPTER TWO: LITERATURE REVIEW

Chapter Overview

This chapter provides a summary of the literature on the academic achievement and transition for students who are labeled learning disabled (LD). Specific areas of focus include: postsecondary supports and services, factors that influence successful transitions to college, and studies concerning transition services for students with LD. Next, the literature is provided that links the benefits of self-determination with the transition process for students with disabilities. Included in this overview of self-determination skills is a review of curriculum and barriers to teaching students with LD these skills. The chapter concludes with an exploration of the uses and theories of combining virtual environments with learning, beginning with an overview of present-day students’ use of media and technology and ending with evidence to support the use of virtual learning environments to teach new skills.

Transition

History and Purpose of Transition

The idea of transition has evolved substantially since the concept was first introduced to the field (Brinckerhoff, 1996; Johnson & Sharpe, 2000; Kohler & Field, 2003; Scott, 1997). The original intent of transition services did not focus on moving students with disabilities into the postsecondary setting (Flexer, Simmons, Luft, & Baer, 2005; Johnson et al., 2002; Kohler & Field, 2003). Instead, most researchers in the early to mid 1980’s envisioned a set of supports and services that would perpetuate reliance on services, moving from the supported secondary
environment to a supported work or community system (Brinkerhoff, 1996; Johnson & Sharpe, 2000; Johnson et al., 2002). Researchers and practitioners have learned a great deal about the transition process since the first follow-up studies were conducted with the original groups of special education students (Field & Hoffman, 2007). Within the last 15 years, more than 500 transition projects have been conducted, resulting in a substantial expansion of the knowledge base of sound transition practices. The results have the potential to profoundly impact the postsecondary accomplishments of adults with disabilities (Johnson et al.; Kohler & Field, 2003).

A coup for all students with disabilities was the movement from a deficit-driven model of education to the present state where the paths to successful post-school outcomes are expanding and increasingly important (Finn & Kohler, 2009; Johnson et al., 2002; Kohler & Field, 2003; Mellard, 2005). The impetus for change began as a collective awareness of the poor post-school outcomes that students with disabilities experienced emerged (Finn & Kohler, 2009; Johnson et al.; Kohler & Field, 2003). To begin to rectify the situation, in 1990, Congress amended IDEA. In addition to providing state and local education agencies with a formal definition of transition, the amendments of IDEA 1990 required state and local education agencies to provide a preparation program that focused on post-high-school outcomes of students with disabilities (Finn & Kohler, 2009; Kohler & Field, 2003). Local education agencies were to create comprehensive, responsive education plans that addressed elements of secondary students’ education that previously had not been sufficiently addressed. At the very least, four fundamental aspects were to be addressed by the transition plans. First, all plans were to be initiated by the
time the student reached age 16. Second, policymakers believed that the likelihood of successful transitions to post-school life would increase if an individual’s transition plan were based on their interests and took into account an individual’s preferences and needs. Third, to fully address an individual’s support needs as he or she moved from the K-12 setting to an adult role, all transition plans were to include a statement of necessary supports and services. Finally, the plans were to include a detailed summary of stakeholders’ roles and responsibilities during the transition process (Finn & Kohler, 2009; Johnson et al., 2002; Kohler & Field, 2003).

Any changes to transition services are driven by the current educational landscape and emphasize the need for improved post school outcomes for students with disabilities. For example, in the past decade, statewide testing and accountability requirements have had considerable influence on critical factors that may impact the level of postsecondary success an individual with disabilities may achieve, such as grade retention and failure to graduate from high school. As such, greater access to the general education curriculum has been granted for many students with high incidence disabilities (Brinckerhoff, 1996; Finn & Kohler, 2009; Johnson & Sharpe, 2000; Johnson et al., 2002). Access to the general education curriculum has been associated with higher levels of academic achievement and appropriate social behaviors in students with LD (Newman, 2006). Additional changes that have influenced transition include: (a) the age of initial transition planning on the IEP was lowered to 14 in IDEA 1997 and then returned to age 16 with the amendments to IDEA 2004 (Finn & Kohler, 2009; IDEA, 1997; Kohler & Field, 2003); (b) the 1997 amendments required IEPs to contain transition service needs as indicated by the student’s course of study (Kohler & Field, 2003); (c) in 1997,
coordinated activities relating transition services were expanded to include transportation and support services; and (d) students are required to be involved in transition planning (Finn & Kohler, 2009). Overall, transition services are designed to support successful post-school outcomes for students with LD through coordinated activities that should guide educational planning and decision-making (Kohler & Field, 2003).

Legal Aspects of Section 504 and the ADA

One of the most critical elements of achievement identified by the NCD (2003) in postsecondary education is the active participation of the learner. In 1977, the Department of Education implemented Section 504 of the Rehabilitation Act, which gave individuals with disabilities equal rights, including protection from being denied access to or discriminated against by any entity that receives federal funding (Flexer et al., 2005; Rehabilitation Act of 1973; Sitlington, 2003). Section 504, Subpart E specifically addressed postsecondary institutions’ academic requirements and methods of evaluation, while requiring that all postsecondary institutions that receive federal funds modify their requirements that were considered discriminatory. These guidelines further established clear boundaries, stating that IHEs do not have to alter or modify the coursework in educational programs if the changes cause the basic elements of the program to be substantially different than the original degree requirements (Section 104.44[b]). Additionally, IHEs are to allow course substitutions, course delivery adaptation, evaluation methods, and protection from any type of discrimination that a student with a disability may face by providing access to appropriate auxiliary aids. The
auxiliary aids were not clearly defined; however, the list did include textbooks on tape, access to oral examination and/or material, readers, and note takers (Section 104.44[d]). This coverage was expanded in 1990 by the Americans with Disabilities Act (ADA) to include all entities despite the absence or presence of federal funding (P.L. 101-336; Sitlington, 2003).

Even with legislative support, adolescents with LD must understand how these laws affect their (a) legal rights and responsibilities; (b) accommodations, modifications and any adjustments of course work; and (c) level of readiness for the demands of the postsecondary environment. The process of receiving accommodations at the college level has been a stumbling block for many students with LD for a variety of reasons (Madaus & Shaw, 2006; Tagayna, Stodden, Chang, Zelenik, & Whelley, 2005). First, colleges and universities are only required to provide services and supports to students with LD upon request by the student with documented need. In other words, new college students with LD must identify and advocate for their needs in order to receive any type of support. However, secondary schools have traditionally failed to prepare these students to demonstrate these coping and self-determination skills (Flexer et al., 2005; Lindstrom, 2007; Madaus, & Shaw, 2006; NCD, 2003; Sitlington, 2003; Tagayna et al., 2005). Second, postsecondary institutions require students with LD to provide documentation of their disability.

Unfortunately, the documentation needed to produce evidence of a disability varies from institution to institution. Since IHE’s are not required to pay for or provide student evaluations or assessments, students often fail to provide timely documentation to secure support at the beginning of their college program (Flexer et al., 2005; Madaus & Shaw, 2006; Lindstrom,
One of the reasons students often fail to have adequate documentation is due to changes in IDEA 1997 that no longer require districts to reassess a student every three years if the student’s IEP team decides that the student is still qualified for special education services. Therefore, many students with LD leave the secondary environment without having up-to-date assessments or evaluations and cannot provide the IHE with current results. Further, Section 504 does not include specifics such as (a) the components of the evaluation that will be used to determine eligibility, (b) the depth of the comprehensive evaluation in order to determine eligibility, (c) the time period an evaluation can be considered valid, and (d) the ability of the evaluation tool to show evidence of LD (Madaus, 2006). This lack of guidance often leads to a significant gap of time between the initial request for support services in the postsecondary environment and the actual commencement of support. A break-in support and/or services during critical times, such as the first year of college, can have a debilitating effect on the student’s academic success and educational persistence.

Due to the variation of the quality and types of services available, many advocacy groups have lobbied to establish guidelines to document evidence of LD (Madaus & Shaw, 2006). The professional group the Association of Higher Education and Disability (AHEAD, 1997) published guidelines that IHEs should use to document the existence of LD in adolescents and adults. This professional group addressed the inadequacy of using an IEP or a 504 Plan alone to document a disability and stated that proper documentation of a LD is based on formal assessments and should include: (a) diagnostic interview; (b) comprehensive assessment battery that measures academic aptitude and processing; (c) professional diagnosis of LD; (d) scores on
all standardized assessments, including a list of academic strengths and weaknesses; and (e) summaries and evaluations of the comprehensive assessment battery (Sitlington, 2003).

Since 1997, only four states (California, Colorado, New Jersey, and Wyoming) have created documentation guidelines for postsecondary institutions to follow (Madaus & Shaw, 2006). The remaining states do not set guidelines as to the types of documentation necessary to substantiate the presence of a limitation of a major life function, in this case, learning (Madaus & Shaw, 2006). Gromley, Hughes, Block, and Lendman (2005) surveyed 104 colleges and universities to determine eligibility requirements and types of assessments used to show evidence of a limitation to learning to establish a diagnosis of LD. The results indicated that the most common type of assessment acceptable to show evidence of a learning disability is the Wechsler Scale of Intelligence to measure aptitude (67%), followed by the Woodcock Johnson Tests of Cognitive Ability (62%), the Woodcock Johnson Revised Tests of Cognitive Ability (56%), and the Stanford-Binet 4 (43%). With the lack of disability evaluation guidelines and each IHE’s freedom to set their own documentation requirements and service eligibility, students with LD who enter postsecondary institutions are commonly confused by the lack of clarity in disability qualification policies. This lack of clarity creates other problems for students with LD as they try to access the necessary supports for success in postsecondary environments.

Self-Determination and IDEA

The focus on self-determination as an educational support to improve post-school outcomes for people with disabilities came on the heels of monumental legislation, including the
Individuals with Disabilities Education Act (IDEA) of 1990 and the Americans with Disabilities Act of 1990 (ADA). Both pieces of legislation protect individuals with disabilities from disability-based discrimination and promote a focus on self-determination as a means to achieve goals and improve the quality of life (Field, Sarver, & Shaw, 2003; Kohler & Field, 2003).

**Supports and Services in the Secondary Setting**

For students with LD, supports and services offered in the secondary environment are significantly different than those available in postsecondary institutions (Mellard, 2005; Ofiesh, 2007). The receipt of a diagnosis of LD and the ensuing process of qualifying for special education services in the public school setting are outlined and regulated by the IDEA (Madaus & Shaw, 2006). Before a student is labeled LD, the mandates of IDEA (2004) recommend that the K-12 system use scientific, research-based interventions that provide opportunities for students to make academic progress within a prescribed period of time (Madaus & Shaw, 2006). If no progress has been made, the student may either be referred for a special education evaluation or is determined to be eligible to receive special education service (Madaus & Shaw, 2006). The discrepancy model for LD determination states that a severe discrepancy must exist between a student’s achievement and their ability (IDEA, 1997).

While still protected under IDEA, the aim of special education is to provide comprehensive services to students with LD (Mellard, 2005; Ofiesh, 2007). Secondary schools are required to provide students with LD (and all disabilities) an Individual Education Program (IEP) (IDEA, 1990; Madaus & Shaw, 2006). At the yearly IEP meeting, team members outline
service provisions and discuss educational programming, psychological assessments, and the use of related service providers to meet students’ needs (Levine, Marder, & Wagner, 2004; Mellard, 2005). The range of services and supports that secondary students with LD may have access to vary based on academic, social, and psychological need. Overall, related services can be clustered into the following seven groups: (a) personal counseling, (b) therapeutic services, (c) health-related services, (d) vocational services, (e) academic enhancements, (f) access and mobility services, including transportation, and (g) personal assistance (Levine et al., 2004). Psychological/mental health counseling is the most widely used related service for all secondary students with disabilities; about 25% of secondary students with LD receive this service (Levine et al.). Almost 20% of secondary students with LD participate in academic tutoring, which makes it the second most commonly used related service for students with LD (Levine et al.). Many students receive accommodations at the university level, and the range of services varies.

Accommodations refer to changes or adjustments in curriculum or presentation of materials to promote learning for students with disabilities (Price, Mayfield, McFarland & Marsh, 2006). The theory behind the use of accommodations states that through the manipulation of a child with a disability’s environment, he or she will be able to learn despite any academic weaknesses (Price et al., 2006), and will use accommodations as methods or tools that help support learning and promote successful academic outcomes (Lindstrom, 2007; Newman et al., 2003; Ofiesh, 2007) Many times students with LD who use accommodations are able to overcome academic barriers that would have traditionally kept them from participating in general education (Newman et al.; Ofiesh, 2007). Accommodations are commonplace in the
general education setting; research from the National Longitudinal Transition Study 2 (NLTS 2) study revealed that 94% of students with LD received at least one type of accommodation (Newman et al.). Extended time on tests is the most common type of accommodation teachers provide to students with LD (77%), followed by extra time to complete assignments (67%), proctor-read tests (27%) and slower paced instruction (25%). The accommodation least used for students with LD in the general education setting is adapting classroom space (4%). The most common learning support provided to students with LD in the general education setting is having the special educator monitor the students’ progress (Newman et al.). Almost 63% of students with LD received this learning support (Newman et al.). The least provided learning support provided to students with LD is self-advocacy training, which is only provided to 2% of students with LD (Newman et al.). These same types of support are often provided to students at university disability services.

Supports in the Postsecondary Environment

Adults who attend post secondary institutions do so to access educational opportunities. However, their chances of academic success are lessened when the post secondary institutions are not prepared to provide the supports and services that are needed to be successful (Mull, Sitlington & Alper, 2001). While all accommodations provide access to the educational opportunities on college campuses, for students with LD, they also represent another significant difference between secondary and post-secondary supports (Lindstrom, 2007; Sharpe, Johnson, Izzo, & Murray, 2005; Tagayna et al., 2005). Recommendations provided by Section 504, and
suggestions by Mull and associates (2001) are that the following accommodations and services are commonly used for college students with LD: (a) an Individualized Academic Plan, (b) remedial classes, (c) tutoring, (d) counseling, (e) using instructional strategies, and (f) using technological accommodations. This list of recommended supports and services clearly indicates that the provision of services on post secondary campuses are more likely to include instructional accommodations than in the secondary setting (Mull et al.; Sharpe, et al., 2005). The lack of consistency between accommodations and supports offered in secondary schools compared with those available in post secondary schools can limit academic success and persistence in higher education for this group of students (Lindstrom, 2007; Mull et al.).

More than a decade ago, the United States Department of Education (DOE) surveyed institutions of higher learning in regards to the accommodations and services provided for students with disabilities (Gromley et al., 2005). The results of the Department of Education’s (DOE) investigation revealed that about 98% of all postsecondary institutions provided at least one support to students with various types of disabilities. The most common type of accommodation provided to students with disabilities on college campuses was the provision of extended time and/or alternative test formats. Approximately 88% of requests for this accommodation were approved at IHEs across the country. The second most common accommodation provided to students was tutoring, (77%), followed by the availability and use of readers, note takers or scribes (69%) (Sitlington, 2003).

Mull and associates (2001) describe the effectiveness of supports and services on college campus throughout the country as problematic. Their analysis of research from 1985 to 2000 on
recommended or presently available services for college students with LD describe the college campus as less tolerable and accommodating. First, although college professors are mandated to provide accommodations to students with LD in their classes, few faculty members are knowledgeable about the effects and impact learning disabilities have on acquiring new knowledge. This limits the likelihood that classroom/instructional accommodations will be implemented (Mull et al.). Second, of the 26 articles the researchers examined, almost 80% did not mention program evaluation. Very little follow-up data are kept to evaluate services that post-secondary institutions provide for students with disabilities. The authors found that the most common types of data that are collected and kept by many IHEs relate simply to graduation rates and progress monitoring. Therefore, the impact of the supports or services that IHEs provide are unclear (Mull et al.).

Funding for disability supports in postsecondary institutions has a considerable effect on availability and use of these services at postsecondary setting (Sharpe et al., 2005; Stodden et al., 2003). The funding infrastructure in higher education is significantly different than funding in secondary environments (Stodden et al.). In postsecondary institutions, disability support funding is determined by what the institution has allotted as a support budget. The limitations of the budget affect the supply of services in two ways: (a) the number of students with disabilities who enter the postsecondary institution and request supports, and (b) the accommodations that are more expensive and more complicated are less likely to be available for student use (Sharpe et al.; Stodden et al.). For example, Sharpe and colleagues (2005) found the most common types of supports provided to postsecondary students with disabilities were (a) additional time and (b)
quiet environments, both of which had little or no bearing on the IHE’s operating budget. In addition, close to 20% of the 139 college graduates who participated in Sharpe and associates’ (2005) interviews did not receive the assistive technology device they felt would have increased their learning opportunities.

The current research base for effective accommodations in postsecondary environments for students with LD is quite limited (Lindstrom, 2007; Ofiesh, 2007; Sharpe et al., 2005). Much of the research that has been conducted on the effectiveness of instructional accommodations is relevant to the K-12 system. Considerably less research has been devoted to researching adequate instructional accommodations for college students with LD (Lindstrom, 2007; Ofiesh, 2007). A majority of the research available on accommodations for postsecondary students with LD focuses not on specific types of accommodations but rather on the arrangement of services, the willingness of faculty to make the accommodations, and the legalities of students accessing accommodations (Ofiesh, 2007). Results of research conducted by Ofiesh (2007) on available accommodations for postsecondary students with LD reported that the ten most used types of instructional accommodations include: (a) extra time, (b) separate testing environment, (c) individualized correspondence with the instructor, (d) tutoring, (e) priority registration, (f) recording class/lectures, (g) using a note taker, (h) preferential seating, (i) option of receiving oral instead of written assessments, and (j) access to books or texts on tape. The ten most commonly used assistive technology devices include: (a) scanners, (b) talking books, (c) compact note taking tools, (d) text help software, (e) specialized tape recorders, (f) speech to text software, (g) mouse options, (h) specialized workstations, and (i) word prediction software.
(Lindstrom, 2007; Ofiesh, 2007). The supports and services that were least likely to be offered included disability specific scholarships, disability assessments and/or evaluations, assistive technology evaluations, real-time captioning, accessible transportation on campus, summer orientation programs, and transfer of supports to work environment (Ofiesh, 2007).

Brinckerhoff (1996) and Madaus (2005) investigated the range of services that colleges and universities offered to students with disabilities across the country. The results of their investigations identified a variety and range of services. Disability support programs typically ranged from decentralized services, which offered the fewest types of support, to databased or comprehensive support programs that offered a myriad of services and supports. Students on decentralized service campuses had access to a formal contact person and were offered limited support services with few established policies on accommodations. Disability services that were described as loosely coordinated services provided a formal contact person on campus, along with access to generic support services. Additionally, colleges or universities with loosely coordinated services had established policies that regulated the provision of accommodations for students with disabilities. Centrally coordinated service campuses employed full-time program coordinators that were housed in an established disability office. Students who attended an institution with centrally coordinated services were provided with established policies and procedures that regulated the use of available supports and services, including the use of adaptive technology. The most comprehensive support services available on college campuses were databased or comprehensive support programs. As indicated by their name, comprehensive support programs had the most extensive service and support programs available on a college
campus. These comprehensive programs offered a full range of accommodations, trained disability specialists, and individualized support plans.

Self-Determination and Transition Aged Youth

Skills for Transitioning from Secondary to Postsecondary Settings

The process of transitioning from secondary to postsecondary settings may be especially challenging for students with LD (Field et al., 2003; Izzo & Lamb, 2003). Students with LD who continue their education and enroll in postsecondary institutions are faced with many changes from academic challenges to provision of services and social adjustments. In secondary school, teachers and service providers are responsible for providing academic support and accommodations. While self-determination is considered a component of the transition process, most students with LD who transition to post-secondary settings do not possess SDS. Although best practices in the transition process are well known and include many components of SDS, these practices are rarely implemented in secondary school (Field et al.; Izzo, & Lamb, 2003). Frequently, students have not been involved in planning the move from high school to college and are not prepared for the academic and service differences they will experience as a college student (Field et al.).

Few students with LD are prepared for the vast difference in levels of support, including accommodations, provided on the college campus (Mellard, 2005; Mull et al., 2001). While in high school, students rely on the special education teacher to coordinate support services,
curriculum adjustments, and accommodations in all settings throughout the school day (Field et al., 2003; Izzo & Lamb, 2003). Instead of completing a college-preparatory curriculum, parents, teachers, and students often rely on short-term solutions, such as course waivers, tutoring, and multiple accommodations as a means to surmount especially difficult academic courses (Johnson et al., 2002; Skinner & Lindstrom, 2003). Students with LD with poor academic and social preparation consistently face challenging scenarios as they transition from secondary to postsecondary settings (Finn & Kohler, 2008; Hitchings et al., 2005; Madaus, 2005; Mellard, 2005; Wagner et al., 2005). In addition, because of parents and service providers’ penchant for advocating for students’ needs, secondary students rarely possess the self-determination or self-advocacy skills that are necessary to succeed in higher education (Field et al.; Izzo & Lamb, 2003; Johnson et al.; Klassen & Lynch, 2007; NCD, 2003; Pierson, Carter, Lane, & Glaeser, 2008; Wehmeyer, 1995). The necessity for secondary students to develop SDS is particularly relevant to students wishing to continue their education (Field et al.; Izzo & Lamb, 2003).

Self-Determination for Important Factors

Including self-determination in transition planning for students with LD is a relatively new concept that has been widely embraced as a way to help youth with LD make a successful transition to postsecondary environments (Durlak et al., 1994; Field et al., 2003; Pierson et al., 2008). As the research supporting self-determination mounted, self-determination surfaced as a promising practice in the quest to improve the quality of life for people with disabilities (Field et al.; Lee, Wehmeyer, Palmer, Soukup, & Little, 2008; NCD, 2003; Skinner & Lindstrom, 2003;
Presently, self-determination skills are being taught as a way to address student’s transition services and planning needs, and to promote access to and participation in the general education curriculum (Lee et al., 2008). However, the process of providing both transition services and academic content to secondary students has been a challenge. Typically, teachers view transition planning and access to the general education curriculum as independent of one another (Lee et al.). The pressure put on special educators to raise academic achievement compounds this measure. The dichotomy of requirements often forces special educators to make a choice between focusing on academic achievement or providing transition services (Lee et al.). If special educators roles are to assist the student in becoming a contributing member of society, they must infuse the process of preparing their students for life after high school, including the promotion of self-determination with content area instruction (Izzo & Lamb, 2003). A commonality between access to the general education curriculum and transition services is self-determination. (Karvonen, Test, Wood, Browder, & Algozzine, 2004).

Promoting self-determination in students with LD is complex and requires involvement from influential people in a student’s life (Izzo & Lamb, 2003; Karvonen et al., 2004; Martin, Van Dyke, Christensen, Greene, Gardner, & Lovett, 2006). In many cases, students with LD have become dependent on their parents and/or their special education teachers and are never taught to advocate for themselves (Durlak et al., 1994). The expectations of the adult world contrast those of high school. Students with LD will face both success and failure, and they must be taught to thrive under both circumstances (Durlak et al.). By teaching students with LD to be
independent, among other self-determination skills, the cycle of dependency and recurring failure so common for many adults with LD may be altered (Durlak et al.).

One way to involve students with LD in the transition planning process and while simultaneously providing an opportunity to practice self-determination is to involve them in their annual IEP/ITP meeting (Durlak et al., 1994; Izzo & Lamb, 2003; Karvonen et al., 2004; Martin et al., 2006; Test et al., 2004). This opportunity allows students with LD to practice several SDS skills, including expressing their academic strengths and weaknesses and decision-making skills and setting goals (Field & Hoffman, 1994; Field et al., 2003; Grigal, Neubert, Moon, & Graham, 2003; Izzo & Lamb, 2003; Mason, Field, & Sawilowsky, 2004). Additionally, students with LD who participate in the IEP process are provided opportunities to examine the connection between the impact of their disability and the level of participation in the general education setting. Further, the opportunity to plan and set goals for the future allows the student to realize the impact of both factors on their survival in the adult word (Durlak et al.). Students with LD who understand their disability and can express their strengths and weaknesses are more likely to develop self-awareness and self-confidence than their peers with LD who lack self-determination training (Hoffman, 2003).

Many students with LD who plan to transition from secondary settings to postsecondary settings have limited practice discussing their disability and needs to teachers and instructors (Durlak et al., 1994). In Durlak and associates’ study, although all eight of the participants were able to describe their disability, seven participants were told they needed to improve their skills in expressing their academic shortcomings and accommodations. Specifically, this group of high
school students was just beginning to learn what their disability meant, the terms their teachers used to describe them, and the accommodations they could use to achieve academic success. These students also were uncomfortable when asked to describe their learning needs. To prepare secondary students with LD to be successful in postsecondary environments, students must be confident and display the ability to describe their disability, its impact on their academic progress, and the tools they use to achieve success (Durlak et al.).

The transition from secondary to postsecondary environments represents a move from a protected environment, where many of the students’ needs are being met, to an environment where students’ needs are only met when they speak up or advocate for their own needs (Wehmeyer, 1997). In order to prepare students with LD for the move from secondary school to postsecondary life, it is necessary to teach more than just basic self-advocacy skills (Wehmeyer, 1997). Students with LD should be taught how self-advocacy relates to, and can impact, academic and social aspects of transition planning. The importance of concepts, such as knowledge and understanding of student rights and responsibilities under IDEA, ADA, and Section 504, along with strategies that promote social success, are essential to accomplish and attain higher levels of education (Wehmeyer, 1997). Due to the interconnectedness of SDS to academic and social skills, students with LD should be taught how to incorporate instructional and social aspects of self-advocacy with other SDS to reach a larger goal (Wehmeyer, 1997). For example, a college student with LD must self-advocate in order to receive the appropriate accommodations. He or she must demonstrate knowledge of his or her right to receive accommodations, as well as effective communication to relay needs, and decision-making to
choose the accommodation that will be beneficial. Thus, the college student with LD who is able to use knowledge and past experience(s) with several sub-skills of SDS is more likely to achieve success than the college student with LD who has no SDS experience.

**Self-Determination**

Commonalities between the Models

Many college students with LD are unsuccessful in acquiring sufficient academic and social support. Although adequate assistance and support are available, countless numbers of students with LD will not access any type of aid. Ineligibility and poor self-advocacy skills stall or stop a throng of students’ academic and social progress. In the last 15 years, with the passage of two federal mandates, SDS has been used to increase the postsecondary success of people with disabilities (Cobb, Lehman, Newman-Gonchar, & Alwell, 2008; Field & Hoffman, 2007; Flexer et al., 2005). For nearly twenty years, data have revealed that access to a free and appropriate education did not ensure post-high school success for students with disabilities (Cobb et al., 2008).

In response to the growing number of poor post-school outcomes for students with disabilities, the Office of Special Education and Rehabilitative Services (OSERS) provided funding for 26 projects on self-determination. The intended outcomes of these projects were to define self-determination, create conceptual frameworks of self-determination, and design intervention techniques to be embedded within the transition process for student with disabilities.
(Brinckerhoff, McGuire, & Shaw, 2002; Field & Hoffman, 2007; Grigal et al., 2003; Lee et al., 2008; Malian & Nevin, 2002). During the six year period from 1990 to 1996, 13 self-determination products were created (four curriculums, three measures/assessment tools, one position paper, one model program and four student directed transition planning programs), and the impact of self-determination skills across ages and disability categories were researched (Abery, Stancliffe, Smith, McGrew & Eggebeen, 1995; Field & Hoffman, 1996; Field, Martin, Miller, Ward, & Wehmeyer, 1998; Halpern, Herr, Doren, & Wolf, 2000; Martin & Marshall, 1995; Test, Karvonen, Wood, Browder, & Algozzine, 2000; Ward & Kohler, 1996; Wehmeyer, 1996; Wehmeyer, Agran, & Hughes, 1998; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000; Wolman et al., 1994). This developmental and empirical research over the past decade has helped to solidify the belief that SDS contributes to more outcomes that are positive for students with disabilities (Field et al., 2003).

The importance of self-determination, education, and transition skills became more apparent as the workforce becomes increasingly diverse and specialized (Izzo & Lamb, 2003). Unfortunately, as evidenced by the NLTS2, students with disabilities are less likely to accomplish the same degree of education or vocation as their non-disabled peers (Izzo & Lamb, 2003; Wagner et al., 2005). Students with LD have lower rates of academic, social, and personal success when compared to their non-disabled peers. Disabilities frequently report a bleak future. Students with disabilities are more likely to drop out of high school, miss more school, have lower grade point averages and lower self-esteem than their non-disabled peers (Baer, Kortering, & Braziel, 2006; Izzo & Lamb, 2003). Only 16% of students with learning disabilities continue
their education at a four-year college or university, and slightly more than one quarter of the students with LD will complete their program of study at the postsecondary institution (Mull et al., 2001; Wagner et al.). Many researchers feel that due to the poor academic and social preparation for people with disabilities, they are unlikely to have success and meet the demands of an increasingly technical and skill-oriented workplace (Fagella-Luby & Deschler, 2008; Izzo & Lamb, 2003).

The Construct of Self-Determination

Many of the variations that exist in definitions and models of self-determination can be attributed to the different biases and beliefs of these project’s directors (Grigal et al., 2003; Wehmeyer, 1999). Field (1998, p.2) for instance stated that people who exhibit self-determination apply “a combination of skills, knowledge and beliefs than enable them to engage in goal-directed, self-regulated, autonomous behavior.” Ward’s (1988, p.2) definition of self-determination was slightly different, he defined self-determination as “the attitudes and abilities that lead individuals to define goals for themselves and to take the initiative in achieving these goals” Malian and Nevin (2002) called self-determination a basic human right. Wehmeyer (1996b, p.24) championed the definition of self-determination to be “to act as the primary causal agent in one’s life.” Despite differences in definitions and models of self-determination, a consensus exists as to the four essential characteristics of the self-determination construct. Wehmeyer’s functional model of self-determination was created around four primary skills, (a) autonomy, (b) self-regulation, (c) psychological empowerment, and (d) self-realization
(Wehmeyer, 1999; Wehmeyer & Field, 2007; Wehmeyer, Sands, Doll, & Palmer, 1997), and 12 component elements, (a) choice-making skills; (b) decision-making skills; (c) problem-solving skills; (d) goal-setting and attainment skills; (e) self-observation, self-evaluation, and self-reinforcement skills; (f) self-instruction skills; (g) self-advocacy and leadership skills; (h) internal locus of control; (i) positive attributions of efficacy and outcome expectancy; (j) self-awareness; and (k) self-knowledge (Wehmeyer, 1999).

According to Wehmeyer’s theory, self-determined behaviors are purpose-driven and begin to emerge as an individual develops all four primary skills and the 12 component skills (Wehmeyer, 1999). Additionally, the factors of age, opportunity, capacity, and circumstance can potentially affect the presence and/or the extent of any component of self-determination. Therefore, the level of self-determination an individual possesses will be inconsistent and change over time, across environments, based on opportunities and circumstances of the situation (Price, Wolensky, & Mulligan, 2002; Skrtic, Harris, & Shriner, 2005; Wehmeyer & Field, 2007; Wehmeyer & Schalock, 2001).

Additional Models for Teaching Self-Determination Skills

Durlak et al. (1994) attempted to create a model for teaching self-determination skills to secondary students with LD. The researchers focused on secondary students with LD who were educated for a majority of their school day in the general education setting. Thus, the purpose of their study was to investigate how well this population of students with LD was able to learn and apply self-determined behaviors, as well as the likelihood that the students would generalize the
SDS to new or other educational environments. A total of eight secondary students, between the ages of 15 and 17, who were diagnosed as students with LD, participated in Durlak et al.’s study.

The instruments designed for use in this study were created to reflect the students’ ability to demonstrate self-determination skills associated with successful transitions to postsecondary environments. The specific skills the researchers were interested in examining included: (a) self-knowledge, (b) compensatory strategies, (c) disability specific knowledge, (d) service and support knowledge, and (e) self-advocacy. Seven activities were created to align the self-determination behaviors with measures to assess the application of each behavior. The seven activities were to, (a) request assistance or clarification of course material, (b) disclose their disability to their instructor, (c) request a conference with their instructor regarding their educational needs, (d) request permission to use accommodations in class, (e) request permission to allow a classmate take notes for him or her, (f) request assistance in the library, and (g) locate and request assistance from resource center personnel. To validate their instrument, the researchers recruited a panel of 15 college disability resource coordinators. Coordinators were asked to rank the importance of each sub-skill for success in the postsecondary setting. At least 80% of the panel must have rated the skill as important for it to be included in the final instrument for the study. The results of this survey indicated that the panelist believed that all seven skills were necessary for student success.

The measurement instrument provided a list of self-determined behaviors. To create the measurement instrument, the authors finalized the seven behaviors. They added eye contact, tone of voice, and posture to the checklist as a way to record behaviors and any changes that took
place. Participants were awarded one point for each correct step taken to complete a SDS behavior.

A single subject multiple-baseline design across behaviors was used for this study. Students were divided into two groups of four and received skill instruction through components of direct instruction and learning strategies. All participants watched the self-determination behaviors being modeled, were provided with many opportunities to practice the behaviors, and were given corrective feedback. Participants received two pre-baseline sessions where he or she reviewed information regarding their disability with his or her teacher and the investigator/trainer. Initial baseline data were collected for all seven skills over three continuous sessions. In these baseline sessions, the trainer recorded the participant’s explanation/answer to how he or she would accomplish the tasks associated with the self-determination skill. Following the third baseline session, once participants reached a rate of 90% accuracy on task completion, he or she was able to moved from one task to the next. Participants did not receive corrective feedback during the baseline phase and were awarded one point for every step they completed accurately.

Training began for both groups of participants after three data points (on all seven tasks) per student had been collected. During this phase, participants received direct instruction on the seven tasks. The trainer followed a specific procedure to teach all seven tasks, which began with an explanation and definition of the task, a demonstration of the task, a questioning period, and finally participant rehearsal of the task. All sessions were videotaped, which allowed for group discussion and corrective feedback. Following any corrective feedback, participants repeated the
incorrect aspect of the SDS task, which allowed him or her to apply the correct behavior.

Maintenance began one week after task mastery. In maintenance, students were to write down the necessary steps to achieve task completion. Trainers scored participants’ responses on the data sheets. Generalization occurred in natural environments around the high school campus and with school staff members who were trainers or the participants’ resource teachers.

The results of this study indicate that students with LD are able to learn, maintain, and generalize SDS tasks associated with successful transitions to postsecondary environments. The researchers created a model that incorporated both direct instruction and techniques of learning strategies as an attempt to create a program to teach secondary students with LD SDS skills that for a successful transition from the secondary to the postsecondary setting. All eight participants learned the seven SDS. During baseline, the average correct skill sequence was 42%. After one training intervention, the average correct skill sequence increased to 82%. The average number of trainings students took to meet criterion (90%) was 2.23 SDS tasks. During the maintenance check, which occurred one week after training, all students had a 100% paper and pencil performance rate. Additionally, all students were able to complete at least four of the five generalization tasks associated with the SDS tasks in the natural environment of the secondary school campus. Two students were unable to generalize their ability to discuss their disability with their teacher and to ask for the appropriate/necessary accommodations. Interrater reliability was calculated using kappa to control for chance agreements. Both interraters must agree that the correct eye contact, posture, and tone of voice were used by the participants along with the
completion of each step of the SDS task. Interrater reliability was achieved with every task with all eight students. Kappa scores ranged from .76 to 1.0 and averaged .93.

Additional Models of Self-Determination

Three additional self-determination models emerged almost concurrently in the field with Wehmeyer’s functional model of self-determination. The first model is Field and Hoffman’s model (1994). The authors identified defining aspects of self-determination, components of self-determination, and factors that support or inhibit one’s ability to be self-determined and created a curriculum entitled *Steps to self-determination*. The six components of Field and Hoffman’s model include: (a) Know Yourself, (b) Value Yourself, (c) Plan, (d) Act, (e) Experience Outcomes, and (f) Learn. Field and Hoffman created their model through structured interviews with adults and students with disabilities. An additional model of self-determination was created by Lehmann, Deniston, Tobin, and Howard (1996). The purpose of this model was to teach low-socio economic status students with disabilities about self-determination during their transition process. Lehmann and others’ (1996) three-phase model of self-determination utilizes assessment, planning, and strategy implementation on topics that ranged from “how to establish friendships” to “how to establish positive relationships with service providers to ensure success”. The third model, created by Martin, Marshall and Maxson (1993), focused on decision-making, independent performance self-evaluation, self-management skills, and self-advocacy skills through participation and management of IEP meetings.
Whose Future is it Anyway?

*Whose Future is it Anyway?*, a fourth model is designed to promote student-focused transition planning for students with high incidence disabilities (Wehmeyer & Lawrence, 1995). The authors contend that students should take ownership of their educational experience when they are involved in and believe their ideas will be included in their education plan. Wehmeyer and Lawrence’s (1995) curriculum provides students with disabilities with opportunities to learn several self-determination skills, including self-awareness, problem solving, decision-making, goal setting, and communication. The curriculum consists of 36 lessons divided into the following six sections:(a) Getting to know you, (b) Making decisions, (c) How to get what you need, (d) Goals, objectives, and the future, (e) Communicating, and (f) Thank you, Honorable Chairperson.

*Whose Future is it Anyway?* (Wehmeyer & Lawrence, 1995) changes traditional teacher roles from the instructor to a facilitator and advocate and moves toward allowing the student to direct his or her own instruction. Through self-directed instruction, students with high incidence disabilities learn about self-knowledge and disability knowledge, decision-making for the transition process, establishing community resources, assessing transition goals, communicating sufficiently, and becoming a team member and a team leader. Participants in the field-testing of the curriculum included 53 students with LD, mild intellectual disabilities, and emotional and behavior disorders. The field participants’ ethnicities’ were diverse. Participants’ backgrounds consisted of African American, White, Hispanic, Asian, and Middle Eastern. A pre-post self-
determination measurement scale was used to examine participants’ autonomy, self-regulation, psychological empowerment, and self-realization. The pre-post measures were evaluated by a repeated measures analysis of variance (ANOVA).

*Whose Future is it Anyway?* (Wehmeyer & Lawrence, 1995) was field-tested over the course of one school year, with 53 high school students. All students were primarily labeled learning disabled or with mild mental delays. On average, the students who participated in the initial field-test were almost 17 years old, and more than half of the test population were labeled as learning disabled. Demographics of the participants were split almost equally into thirds; one-third of the student population was White, one-third of the population was Black, and one-third of the population was Hispanic. There were two students who did not fit into any of these three categories, one was an Asian student and one had a Middle-Eastern background. Twenty-five males (47%) with an average age of 16.62 years, and twenty-eight females (53%) with an average age of 17.15 years, participated in the field test.

Wehmeyer’s Four Characteristics of Self-Determination Skills

Further detail is given to Wehmeyer’s (1996a) functional model of self-determination due to the model’s comprehensiveness. The model includes the four main characteristics of self-determination, including (a) autonomy, (b) self-regulation, (c) psychological empowerment, and (d) self-realization, as well as the 12 component behaviors or skills the four main characteristics can be further broken down. The first of the four characteristics, autonomy is the ability of a person to (a) act on his or her proclivity, pursuits, and/or skills or talents (Skrtic et. al., 2005;
Wehmeyer & Schalock, 2001); and (b) gain independence from external interference or influence (Price et al., 2002; Wehmeyer, 1999; Wehmeyer & Field, 2007). The majority of people do not act solely on their own volition. Humans, by nature, are interdependent and rely on each other for various reasons. Autonomy, for the purpose of self-determination, is not the absence of influence or interference. Instead, autonomy is the choices and decisions made without influence or interference from others (Wehmeyer, 1999). People who exhibit autonomous behavior exhibit a variety of skills such as (a) choice-making, (b) problem solving, (c) decision-making, and (d) safety and are able to set and attain goals (Skrtic et al.; Wehmeyer & Schalock, 2001; Wehmeyer, 1999). Additional characteristics of people who are autonomous include: self- and family-care, management activities, recreation/leisure activities, and social and vocational activities (Wehmeyer).

Field and Sarver (2003) conducted an investigation where students with LD increased their level of autonomy, and were able to accept responsibility for making and following plans to reach their goals. After participation in this study, students with LD were able to verbalize and understand the difference between making goals and the steps needed to reach their goals. Additionally, the sample of students were able to adapt to changes in their plans and determine if alternate paths were necessary.

Whitman (1990) defined self-regulation as “a complex response system that enables individuals to examine their environments and their repertoires of responses for coping with those environments to make decisions about ways to act, to evaluate the desirability of the outcomes of the action, and to revise their plans as necessary” (p. 373). Behaviors that are
included under the self-regulated behavior component include: (a) goal setting and attainment, (b) problem solving, (c) decision-making, (d) self-monitoring, (e) self-instruction, (f) self-evaluation, (g) self-reinforcement, and (h) observational learning (Agran, 1997; Price et. al., 2002; Wehmeyer & Schalock, 2001; Wehmeyer, 1999). Individuals who exhibit self-regulated behaviors are able to analyze a situation, identify the appropriate behaviors to use, and make the necessary changes to ensure success (Wehmeyer, 1997, 1999). Self-regulated behaviors contribute to a person’s ability to become a causal agent in their life (Wehmeyer & Schalock, 2001).

The third component, psychological empowerment, combines personal efficacy and locus of control (Wehmeyer, 1999). People who are psychologically empowered believe they have control over important results in their lives (Price et al.; Skrtic et al., 2005; Wehmeyer, 1999; Wehmeyer & Field, 2007; Wehmeyer & Schlock, 2001). Psychologically empowered individuals believe that the outcomes of a situation are based on his or her ability to display behaviors that are aligned with their goals (Price et al.).

Students who have self-realization skills know their strengths as well as their weaknesses. They know how to compensate for their limitations. Students who exhibit self-realization skills can determine self-knowledge and understanding through gauging their own behavior and using self-reinforcements to achieve knowledge (Wehmeyer, & Schalock, 2001).
Self-Determination and the potential implications of technology

Characteristics of Digital Natives

Statistics of the digital native generation reveal a group of learners who were born around the same time the personal computer (PC) arrived (Dede, 2002; Oblinger & Oblinger, 2005; Prensky, 2001). Approximately 20% of the net generation began using computers between the ages of five and eight. Almost all of the digital natives were using computers by the time they were 18 (Oblinger & Oblinger, 2005). Today’s youth, including those with LD, are using technology at an even younger age; 96% of children between the ages of eight and 18 have explored the World Wide Web; 74% of this group of have Internet access at home; 61% use the Internet everyday (Oblinger & Oblinger, 2005). The exposure to information technology (IT) does not just affect school-aged children, almost 27% of children as young as four-years old spend on average, an hour using a keyboard. The average amount of time children ages six and under interact with television, videos, computers, and/or video games (commonly called screen media) is estimated to be two hours per day (Heeter, 1992; Lee, 2004; Oblinger & Oblinger, 2005). When compared to the average amount of time this group of children are exposed to reading, or print materials of only 39 minutes per day, it is easy to see how this generation gathers and learns information through digital mediums (Heeter, 1992; Lee, 2004; Oblinger & Oblinger, 2005). With this in mind, advances in technology, especially those that infuse technology into academic support/interventions for students with LD, will provide this group of
learners with environments that can be designed to meet their learning needs and styles. (Fitzgerald, Koury, & Mitchiem, 2008).

**Self-Determination Skills and Virtual Learning Environments**

The evolution of virtual reality (VR) within the context of disability and rehabilitation research has been viewed as both a ‘substantial contribution’ to the ‘trough of disillusionment’ (p.1) (Bricken, 1991; Gartner Group, 2003; Rizzo, 2002). Early researchers of VR were plagued with technological difficulties, funding obstacles, and media speculation that implied VR had not lived up to its original expectations (Rizzo, 2002). During the early to mid-1990’s, common technological tools limited and/or substantially reduced the breadth of VR research that was originally conceptualized (Rizzo, 2002). However, within the last decade, as technology advanced and became more available and less expensive, the VR systems originally conceptualized have come to fruition (Brooks et al., 2002). The modern VR systems are technological tools created with the intention of providing users with an opportunity to become immersed in three-dimensional (3D) simulated digital virtual environments (VEs) (Bricken, 1991; Brooks et al.; Cobb, 2007). The functionality of contemporary VR systems provides disability and rehabilitation researchers with a platform to explore specific concepts, such as assessment, training, and skill generalization by contributing to education and successful transitions for people with disabilities (Rizzo, 2002).
Transfer of Information within the Virtual Learning Environment

Virtual learning environments can provide students with and without LD with a multitude of educational experiences and opportunities that may not be available in real-world settings (Cobb, 2007; Cobb, Neale, & Reynolds, 1998; Limniou, Roberts, & Papadopoulos, 2008; Winn, 1993, 2002). The exposure to the tools and methods available for training and education in a VLE has been shown to provide students with the opportunity to construct knowledge through direct interaction with objects and develop the psychological process involved with people learning (Winn, 1993). One particular aspect of VLE that supports skill training and education for students is related to the pedagogical move from student repetition and memorization to learner immersion and interaction (Brooks et al., 2002; Brown, Standen, Proctor, & Sterland, 2001; Limniou, et al., 2008). The interactions that happen in the VLE give the learner the feeling of actually being inside the virtual environment and provide the learner with the ability to act on his or her thoughts or ideas or experience self-directed learning (Cobb, 2007; Limniou et al.).

The potential VLE experiences are particularly relevant to the transfer of knowledge from one environment to the next and also from acquisition to application, thus training within the VLE allows learners the ability to interact with their environment in ways that are not available in the real world (Brooks et al.; Brown et al.; Cobb, 2007; Limniou et al.). Specifically, examples of interactions that are not available in the real world for learners include: (a) exposure to objects and environments that may or may not be available in the real world, such as exploring a virtual atom (b) ability to explore various perspectives and viewpoints within the VLE, such as using a wheelchair to move around and (c) ability to exhibit behaviors or actions that are impossible in
the real world, such as flying. The opportunities available to learners as aspects of instruction within a VLE are to provide learners training that incorporates skill acquisition (Bossard, Kermarrec, Buche, & Tisseau, 2008; Dickey, 2003).

The contribution of learning within VLEs is particularly appropriate for students with disabilities (Brooks et al., 2002; Brown et al., 2001; Cobb, 2007; Rose et al., 2000). Education within a VLE has shown to be successful for many people with a broad range of disabilities, including people with LD. The characteristics of VLEs that support learning for people with disabilities include (a) providing a safe environment where people with disabilities can practice a skill, behavior, or activity in an environment where they would not normally be able to do so, such as practicing courtroom skills (Brooks et al.; Brown et al.; Cobb, 2007; Cromby, Standen, Newman, & Tasker, 1996; Gourlay, Lun, Lee, & Tay, 2000; Rose et al., 2000); (b) decreasing the reliance on tutors or teachers in the learning process, which may substantially lower expenses (Cromby et al.); (c) lowering the likelihood of physical and emotional risk (Brown et al.; Cromby et al.; Gourlay et al., 2000); (d) assessing abilities or skills with real-world relevancy in interactive scenarios by tapping into neuropsychological tasks (Matheis et al., 2007; Rose et al.); (e) measuring multiple cognitive abilities, specifically complex skills and behaviors that allow professionals to more accurately predict real-world behavior (Matheis et al., 2007; Rose et al.); (f) exercising control over content and environment that is to be created for learning (Gourlay et al; Rose et al.); (g) adding motivating factors, such as gaming to increase learner motivation (Cobb, 2007; Gourlay et al.; Rose et al.); (h) changing the difficulty level of a task as necessary (Brooks et al.); (9) exercising control of the nature and pattern of feedback (Rose et al.); (i)
promoting active involvement in the skill or scenario (Brown et al.); (j) promoting the learner’s sense of control over the learning process (Brown et al.); and (k) facilitating understanding through activities instead of abstract concepts (Brown et al.). These aspects are essential to ensure the highest learning gains in the VLE.

Generalization to Real World-Performance

Prior to the end of the first decade of VLEs, Brown and associates (2001) conducted four studies on the effectiveness of supporting people with disabilities in these environments. From the results of the four studies, the authors were able to devise a set of design guidelines for effective training of people with disabilities in VLEs (Brown et al.). The authors contend that future VLEs honor user-centered design. They also suggest that a set of design guidelines be created to support skill-training transfer from the VLE to real-world settings. This transfer of skills is especially important as people with a range of disabilities and ages are increasingly introduced to learning in VLEs (Brown et al.). The initial validity of their methodology was evaluated through formal evaluations of six adolescents ages 12-19, with LD, who participated in the Virtual Glenwood Growers users group from the Shepherd School in Nottingham, United Kingdom. All of the participants were enrolled in a program to learn employment-related horticulture skills to support their eventual transition into the workforce after high school. Additional content analysis of the design principles was conducted on the users in the Virtual Beach and the Virtual Travel Training program. Both environments were produced for people
with severe and profound disabilities. These guidelines, called the Greenhat Design Guidelines, are based on software that is both usable and effective for people with disabilities (Brown et al.).

The design principles consist of 20 guidelines that should be included when creating VLEs for a range of people with a variety of disabilities. The Greenhat Design Guidelines propose that all VLEs should be tailored to the user’s requirements, meaning if a person does not have use of their hands, the basic structure of the program should not call for the user to move a joystick in order to participate. Additionally, storyboards should be created to ensure learning objectives are met. Ease of use for participants should follow these guidelines: (a) provide short, easy to remember instructions; (b) use the least complicated input devices; (c) limit interruptions and stop all activity during instruction; (d) not use uncomplicated input devices; (e) use prompts to convey correct procedure order; (f) use pictures and symbols and voice over and avoid text; (g) consult speech therapists for symbol suggestions; (h) use standardized and consistent symbols; (i) keep the VLE realistic; (j) use input devices that allow maximum accessibility for people with disabilities; (k) widen doorways and entryways to ensure accessibility; (l) design the VLE to be non-immersive; (m) design dialogue boxes to remain on the screen for as long as necessary; (n) design the clickable area of an object to be larger than the object; (o) make all objects visible during instruction; (p) design actions to require few input device clicks; (q) widen or increase the space in the viewers line of vision; (r) match learning objectives with user ability; (s) create clues that allow for authentic design and (t) reward users for purposeful action. The authors theorize that employing these design principles when creating a VLE for people with
disabilities will increase the likelihood of generalization from the VLE to real-life settings (Brown et al.).

**Post-Secondary Outcomes**

**Employment for Adults with Learning Disabilities**

Recently, an increased amount of interest has sparked research on the topic of outcomes for students with LD, specifically in employment experiences (Maudus, Gerber, & Price, 2008). Currently, the amount or level of success adults with LD experience remains inconclusive. A large portion of transition researchers state that “adults with disabilities continue to be underemployed or unemployed and are less likely to have higher levels of education.” (Hitchings, Retish, & Horvath, 2005, p.26), while a much smaller group of researchers claim that “adults with LD are employed at rates similar to their non-disabled peers” (Madaus, Foley, McGuire, & Ruban, 2002, p.365). Regardless of the inconclusiveness of current employment rates for adults with disabilities, the Bureau of Labor Statistics reports that adults with at least a bachelor’s degree are less likely to be unemployed than those with either some college or only high school diplomas (Madaus, 2006; Wolfe & Lee, 2007). Another important factor related to career or workplace success for adults with LD is their knowledge of the Americans with Disabilities Act. When compared to adults with LD who have little knowledge about their rights and responsibilities under ADA, adults with LD who are familiar with their rights under ADA, who disclose their disability, and display self-determination skills are more likely to have job or career stability. Additionally, adults with LD who have postsecondary schooling are more likely
to remain employed (Gerber et al., 2008; Mulligan & Shessel, 2004; Price, Gerber, & Mulligan, 2007).

Present Transition Outcomes

The amount and type of education a person with a disability attains can directly influence his quality of life. The attainment of a college degree has a positive outcome (Finn, Getzel & McManus, 2008; Hitchings et al., 2005; Madaus & Shaw, 2006; Mellard, 2005; NCD, 2003; Sitlington, 2003). Adults with LD who complete postsecondary degrees have employment rates and salaries that are comparable to the employment and salaries of their non-disabled, degreed peers (Finn et al., 2008; Sitlington, 2003). Additionally, college graduates with LD are more financially secure than adults with LD without a degree (Finn et al.; Madaus et al., 2008; NCD, 2003). While the number of students with disabilities attending and graduating from postsecondary institutions has significantly increased over the past 20 years, students with disabilities are still entering postsecondary institutions half as often as their non-disabled peers (Flexer et al., 2005; Kohler & Field, 2003; Madaus & Shaw, 2006; Scanlon et al., 2008; Wagner et al., 2005). Further, although almost 80% of students with LD indicated postsecondary education as a goal two years after high school, only 16% actually entered any type of postsecondary institution (two-year community college, vocational, business, or technical school, or four-year college). Current rates of attendance at four-year institutions for students with disabilities continue to be drastically less than their non-disabled peers, with rates estimated at 8% to 29% respectively (Wagner et. al.). A relatively small number of students with disabilities appear to progress from
secondary to postsecondary environments, although a major premise of IDEA over the last 20 years is to prepare students with disabilities to be employed and autonomous. A core value of this preparation should be a smooth transition from secondary to postsecondary schools (Madaus & Shaw, 2006; Mull et al., 2001).

Access to postsecondary education continues to be problematic for secondary students with LD (NCD, 2003; Ofiesh, 2007; Stodden et al., 2003; Tagayna et al., 2005). Secondary students with LD are more likely to struggle academically and experience social problems that often limit the opportunities to continue their education beyond high school (Hitchings et al., 2001; Stodden et al.; Tagayna et al.). Along with the naturally occurring changes that take place as a young adult moves from the K-12 setting to an environment with more freedom and choices, students with LD face additional challenges such as (a) poor knowledge and use of learning strategies and study skills, (b) poor organizational skills, and (c) poor social interaction skills. For those students with LD who are admitted into college despite their LD, the likelihood that they will face academic difficulties in their college courses is staggering. The majority of college students with LD report problems with reading and writing. Once they become college students, most of their learning involves reading and writing, including classes in science and mathematics. The pool of potential college students with LD is reduced when self-esteem issues are reviewed. In addition to higher than average high school dropout rates that inhibit academic persistence to higher education settings; the statistics regarding the successes of students with LD on college campuses is very similar (Hitchings et al. 2001; Madaus, 2005; Stodden et al.; Tagayna et al.). Students with LD on college campuses have traditionally exhibited low rates of
self-determination skills; many students do not identify themselves as a student with a disability on the college campus. Further, their graduation rates from college, the length of time they take to complete their degrees and employment percentages after graduation are far less than their non-disabled peers (Tagayna et al.).

Although infrastructures have been in place for the last two decades to help facilitate the transition process for students with LD from high school to college, the challenges that students with LD face upon enrollment require substantial adjustment (Getzel & Thoma, 2008; Johnson et al., 2002; Madaus & Shaw, 2006). Suddenly, postsecondary students with LD are responsible for their academic success and progress. They must understand and know their rights and responsibilities, and be able to access the proper supports. In order to do so, self-determination skills are an essential characteristic. Further, as technology continues to develop, the integration of technology and academics will become increasingly important for academic success and persistence (Getzel & Thoma, 2008; Johnson et al.; Mellard, 2005; Tagayna et al., 2005). This study addressed these complex issues of transition to college for middle school students with LD by focusing on this critical transition process beginning in early adolescence.
CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study was to measure the effects of teaching self-determination skills (SDS) to middle school students (MSS) with learning disabilities (LD) in a virtual learning environment (VLE). Data were collected from 86 MSS over the course of 16 one-time sessions. Participants were randomly assigned to one of three groups: the Activeworlds Group (AW Group), the PowerPoint Group (PPT Group), and the No Intervention Group (NI Group). Five PowerPoint modules on SDS were created to teach the AW Group and the PPT Group about SDS in one session. All five modules were adapted from the transition planning curriculum, *Whose Future is it Anyway?* The AW Group viewed the SDS modules within the VLE, UCanFnsh located in the Activeworlds Education Universe (AWEDU). Participants in the PPT Group viewed the SDS modules in the natural setting, primarily a computer lab within the school. The last group, the NI Group did not receive any SDS training. Participants in all three groups took the pre and posttest measure of the *AIR Self-Determination Scale* (Wolman et al., 1994). This scale measures participant’s self-determination skills in three areas: knowledge, ability, and perceptions. In addition to the *AIR Self-Determination Scale* (Wolman et al.), all participants completed a set of five activities designed to measure the individual’s ability to apply SDS within the context of a college setting. The five tasks that each participant was asked to perform are considered particularly relevant and essential for success in postsecondary settings for students with LD.
Research Questions

The encompassing research questions were as follows:

1. Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment demonstrate significantly more knowledge of self-determination skills than students identified with learning disabilities who receive self-determination skills training via PowerPoint or students with learning disabilities who do not receive self-determination skills training?

2. Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment have higher levels of self-determination than students with learning disabilities who receive self-determination skills instruction via PowerPoint or students with learning disabilities who do not receive any self-determination skills training on the AIR Self-Determination Scale?

The purpose of the research questions were to: (1) determine whether MSS with LD show evidence of learning SDS in a VLE and (2) to determine if MSS with LD generalize and apply newly acquired SDS. Additionally, the results of the study allowed the researcher to determine if one method of presenting SDS has a greater impact on student learning over another.

General Research Hypothesis

Null Hypothesis 1:

Middle school students identified with LD who received SDS instruction in a VLE will not demonstrate significantly more knowledge of SDS and behaviors than MSS with LD who received instruction via PowerPoint or MSS with LD who did not receive any SDS instruction.
Null Hypothesis 2:

Middle school students identified with LD who received SDS in a VLE will not demonstrate significantly more knowledge of self-determination than MSS with LD who received instruction via PowerPoint or MSS with LD who did not receive any SDS instruction.

Setting

The setting for this study included three public middle schools in Central Florida. Seventy-one MSS identified with LD who attended public middle school were identified as participants. The enrollment of School 1 was 1,453 students. The diversity of School One reflects the diversity of the surrounding community. School One’s demographics are 45% White, 8% Black, 37% Hispanic, 6% Asian, and 4% other ethnic origin. Approximately 401 (28%) students were staffed in special education. Almost 40% of the students who received special education services were labeled learning disabled (LD). During the 2008-2009 school year 89 faculty members taught at School 1. The second setting served approximately 1,418 middle school students. The school’s demographics were also representative of the community, 53% are White, 32% Hispanic, 9% Black, 3% Asian, and 3% other ethnic origin. Approximately 27% of the students at School Two received special education services, of those students, 31% were labeled LD. School Two had 92 faculty members during the 2008-2009 school year. School Three has 1,188 students, of which 72% are Hispanic, 16% White, 10% Black, 4% Asian and other ethnicity. More than 270 students at the third site received special education services, 49%
of the special education students at School Three had learning disabilities. Eighty-seven faculty members worked at School Three.

Table 1 *School Demographics*

<table>
<thead>
<tr>
<th>School</th>
<th>School #1</th>
<th>School #2</th>
<th>School #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Disadvantaged</td>
<td>450</td>
<td>31%</td>
<td>657</td>
</tr>
<tr>
<td>ELL&lt;sup&gt;b&lt;/sup&gt;</td>
<td>164</td>
<td>11%</td>
<td>160</td>
</tr>
<tr>
<td>ESE&lt;sup&gt;c&lt;/sup&gt;</td>
<td>401</td>
<td>28%</td>
<td>386</td>
</tr>
<tr>
<td>LD Population</td>
<td>160</td>
<td>40%</td>
<td>120</td>
</tr>
<tr>
<td>Black</td>
<td>118</td>
<td>8%</td>
<td>123</td>
</tr>
<tr>
<td>White</td>
<td>652</td>
<td>45%</td>
<td>753</td>
</tr>
<tr>
<td>Asian</td>
<td>89</td>
<td>6%</td>
<td>44</td>
</tr>
<tr>
<td>Other</td>
<td>57</td>
<td>4%</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>1453</td>
<td>1418</td>
<td>1188</td>
</tr>
</tbody>
</table>

<sup>a</sup> Economically Disadvantaged based on eligibility for free and reduced lunch  
<sup>b</sup> English Language Learner  
<sup>c</sup> Students with disabilities receiving special education services

**Participants**

The participants in the study consisted of 71 students at three middle schools identified as learning disabled. All participants were between 12 and 15 years old, and had been diagnosed by a certified professional (e.g., school psychologist). Inclusion in the study was dependent on
participant’s willingness to be assessed, to participate, and return a signed consent form from at least one parent or guardian, as well as a signed assent form. A stipulation on the parent/guardian consent form stated that in order to participate in this study, “your child must know that he or she has a learning disability.” Academic limitations and the severity of the learning disability were not available to the researcher. Participant demographic information such as race, gender, and grade level were recorded during data collection. Data in Table 1 shows the demographics of the middle school students. Seventy-four percent of the study participants are considered ethnic or minority students. Thus, the sample of this study had a large overrepresentation of ethnic or minority students and did not reflect the diversity of the district (49% from ethnic or minority backgrounds). Males accounted for almost 60% of the study population. Of the 71 students who participated in this study, 22 (31%) were in 6th grade, 25 (35%) were in 7th grade, and 24 (34%) were in 8th grade.

All participants were students identified as having a learning disability based on the State of Florida’s definition of Specific Learning Disabilities. In the state of Florida, the term SLD is defined as “a disorder in one or more basic learning processes involved in understanding or in using language, spoken or written, that may manifest in significant difficulties affecting the ability to listen, speak, read, write, spell, or do mathematics.” According to the State’s definition, the academic achievement of students’ with SLD is not congruent with their chronological age or grade level. The learning disability can affect one or more of the following areas: “(a) oral expression; (b) listening comprehension; (c) written expression; (d) basic reading skills; (e) reading fluency skills; (f) reading comprehension; (g) mathematics calculations; (h) mathematics
problem solving.” Students can also qualify for SLD services when he or she does not show evidence of academic growth despite the use of scientifically based intervention methods and continues to need intensive support that is not available in a general education setting (Florida Department of Education, 2008, p.1-4).

**Sampling**

The participants in this study were recruited from three middle schools in a central Florida district. All middle school students with learning disabilities in the three middle schools were recruited. Following identification of the eligible students, the staffing specialist from each school sent consent forms home. Only those students who returned the consent forms were included in the study. Therefore, a voluntary convenience sampling method was utilized.

In order to determine the total number of participants per group, a power analysis was completed. The statistical level of significance for this study was set at .05 ($\alpha = .05$), power was set at .80 and the expected difference in the means between the control groups and the experimental group was one standard deviation. Therefore, the total number of participants necessary to have sufficient power is 78 (Guilford & Frunchter, 1978).

Data were collected in 16 sessions over fourteen inconsecutive days during the months of April and May (see Table 2). All 16 sessions were held in a computer lab at each school. Student participants were randomly assigned to one of three groups, the AW Group, the PPT Group, and the NI Group. During Sessions 1, 4, 7, 10, 12, and 15 only the NI Groups participated. The PPT Groups participated in Sessions 2, 5, 8, 13, and 16. Sessions 3, 6, 9, 11, and 14 consisted of
participants in the AW Groups. Each session represents one day of data collection with the exception of Sessions 9-12. Data for Sessions 9 and 10 were collected on the same day. Session 9 was held in the morning, and Session 10 was held immediately after lunch. Data collection for Sessions 11 and 12 were replicated from the previous day of data collection. Session times ran between 49 minutes to three hours.

Table 2 *Data Collection Sessions*

<table>
<thead>
<tr>
<th>Gender</th>
<th>School 1</th>
<th>School 2</th>
<th>School 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AW</td>
<td>NI</td>
<td>PPT</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td># of sessions</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Avg. time (min.)</td>
<td>126</td>
<td>59</td>
<td>104</td>
</tr>
</tbody>
</table>

*Note.* AW = Activeworlds Group; NI = No Intervention Group, PPT = PowerPoint Group
Instrumentation

AW Development

The AW Group received the intervention (SDS training) in the project by connecting to the Internet and logging into the Actvieworlds.com website. Activeworlds (AW) is an interactive, 3D virtual environment that supports over 700 worlds. Members of the AW community become citizens and are able to build on and purchase virtual property. Activeworlds was chosen as the virtual site for the VLE that was created for this study for three reasons. First, AW allows children and adults to be together in the same virtual environment, at the same time. In other virtual environments, adults are prohibited from going to, or logging into the Teen Worlds. The inability to be able to be in the virtual world at the same time as the research participants initially created study design concerns. A second significant factor in the decision to create a world in AW was the cost. The cost of virtual land in AW and the cost of hiring a builder was about a third of the cost to build a similar world in other virtual environments. Third, the Activeworlds Education Universe (AWEDU) provided the tools to build the type of structure that would be able to meet all of the needs associated with the study, while also minimizing the risks that are occasionally associated with virtual worlds. To ensure participants were able to have the type of learning experience originally envisioned with this project, it was necessary that the VLE have access to provisions such as Internet access, the use of Voice over Internet Protocol (VoIP), and Instant Messaging (IM).
Greenhat Design Guidelines

The creation of UCanFnsh and the activities that participants completed in UCanFnsh were based on guidelines, a curriculum, and the outcomes transition and self-determination research in special education. UCanFnsh is a 400 x 400 meter virtual world that was built using the software called Activeworlds. UCanFnsh is located in the AWEDU, a much smaller portion of the Activeworlds Galaxy. The physical design of the campus, the buildings, and the classrooms were based on a set of design guidelines called the Greenhat Design Guidelines (GDG) (Brown et al., 2001). The GDG provide an established set of best practices that other designers and researchers use while developing VLEs for people with disabilities. The guidelines are based on the results of several research studies conducted to determine advantages of using VLEs to teach people with disabilities (Brown et al.). The flexibility and manipulation of the VLE allows for scaffolded learning in ways that are not available in the natural setting. Finally, the semantics used in VLEs allow communication to flow by the use of universal symbols and characters as well as words (Brown et al., 1999).

Whose Future is it Anyway?

The curriculum that participants watched in UCanFnsh is based on a validated transition-planning curriculum for secondary students with mild to moderate cognitive disabilities called Whose Future is it Anyway? (Wehmeyer & Lawrence, 1995). The curriculum is student-directed and was created to foster students’ understanding of ways to increase opportunities to exercise control over several aspects of the learning process. Participants learned ways to become
included in planning their future. Specifically, students learn how to set goals, measure their progress toward their goals and evaluate their performance and make the necessary changes. In total, six themes, including self-and disability awareness, the transition decision making process, understanding the role of community support in the transition process, identifying transition goals, communication techniques, and becoming an effective team member were created and then broken down into 36 sessions (see Table 3).

Table 3 Whose Future is it Anyway Themes

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Getting to Know You</td>
<td>Transition, Educational Planning, Transition according to IDEA, People who should be present at meetings, People who have been present at meetings, People who are wanted at the meetings</td>
</tr>
<tr>
<td>2</td>
<td>Making Decisions</td>
<td>Decision making process, DO IT! DO IT! for transition planning</td>
</tr>
<tr>
<td>3</td>
<td>How to Get What You Need, Sec. 101</td>
<td>Locate community resources, Gather information about community resources, Think about alternative community supports (specific and non-specific to people with disabilities)</td>
</tr>
<tr>
<td>4</td>
<td>Goals, Objectives, and the Future</td>
<td>WIG OUT rules for writing goals and objectives, identify present goals on IEP, Evaluate the goals based on their interests, Develop additional goals for the next meeting</td>
</tr>
<tr>
<td>5</td>
<td>Communication</td>
<td>Interpretation of behaviors, Differences between aggressive and assertive communication, Negotiating and compromise</td>
</tr>
<tr>
<td>6</td>
<td>Thank you, Honorable Chairperson</td>
<td>Learn types and purposes of meetings, How to hold an effective meeting, Meeting chairperson roles, Team member roles</td>
</tr>
</tbody>
</table>
To measure participants’ levels of self-determination, which was the basis for this curriculum, the authors administered four scales. The first tool used was *The Arc’s Self-Determination Scale* (Wehmeyer, 1995). This scale measures four characteristics of self-determination, independence, self-regulation, empowerment, and self-realization. To measure students’ levels of locus of control, the authors used the Adult version of the Nowicki-Strickland Internal External Scale (Nowicki & Duke, 1974). The Nowicki-Strickland Internal External Scale is used to define the extent that people are able to see the relationship between his or her actions and the outcome(s) of any given situation. The third and final scale used combined the effects of self-efficacy and its impact on educational planning. The authors created 20 questions that measured self-efficacy and the outcome expectancy for social skills. To validate their questionnaire, the authors also administered The Self-Efficacy Scale (Sherer et al., 1982), which was designed to measure one’s belief in their competence.

The results of the four measurements did not reveal significant changes in scores on the Self-Efficacy/Outcome Expectancy questionnaire from the pre-intervention to the post-intervention. The changes in self-efficacy and in outcome expectancy for educational planning showed an increase in the students’ beliefs that they had the skills necessary to participate in the transition planning process. The students also believed that their actions would bring about their desired outcomes in their planning meetings. Additionally, qualitative data revealed that the students particularly enjoyed six components of *Whose Future is it Anyway?* (Wehmeyer & Lawrence, 1995), including learning about community resources, jobs, themselves, testing, the law, their future and what they would do upon graduation, and learning how to do something on
their own. However, there were no significant differences between pre and posttest scores on self-determination scores and locus of control scores, therefore, the authors limit the amount of success of the curriculum. Wehmeyer and Lawrence (1995) remind the academic community that self-determination and locus of control change over time and across situations. The positive results of an intervention may not be immediately apparent, especially if the student(s) prior school experiences were negative.

Self-Determination Skills Modules

As stated previously, the modules used for this project were adapted from the reliable and valid transition planning curriculum and only sections from five of the 36 total lessons found in Whose Future is it Anyway? were used. The researcher gathered information from literature on the SDS that are essential for success in college students with LD. After a thorough literature review on self-determination, and transition to college for students with disabilities (see Chapter 2), and the findings from Durlak and associate’s (1994) study on self-determination skills needed for success in higher education for this group of students, seven critical skills were chosen as the basis of the curriculum. The seven skills were goal setting, decision-making, self-management, self-advocacy, understanding of rights and responsibilities, autonomy, self-efficacy, and self-knowledge/disability awareness and understanding. Five PowerPoint presentations were created. The average presentation included 15 PowerPoint slides. Module 4 had 11 slides and was the shortest; Module 1 was the longest presentation with 19 slides.
Module 1 (see Appendix B) covered the topic of decision-making. This module explains how each student should be involved in the decision-making processes that involve him or her and their future. Further, the module discusses what decisions by breaking the skill down into the steps involved in decision-making, including choices and consequences. A mnemonic device, DO IT! (D-Define your problem, O-Outline your problem, I-Identify the outcome of each option, T-Take action, and! -Get excited) is introduced and the relevancy to the decision making process is explained. Next, the participants read a situation and were asked to think about how they would respond to the situation. The module concludes with a short review of the material they learned and had a link to the quick check questions that the participants were to take after watching Module 1.

Module 2 (see Appendix B) covered the topic of goal setting. In this module, participants were taught the definitions of long-term goals, short-term goals, and objectives. Several examples of situations that discussed the difference between long-term goals and short-term goals were given. Participants were shown how goals and objectives lead to outcomes. Using a map as an analogy, students were told how goals are like roads, as both are able to take people to their desired destination. The use of supports in goal setting was discussed. The participants were introduced to a psychologist Dan Winchester, who set goals to run a marathon. The story explained that Dr. Winchester’s goal was to complete a marathon in less than 10 hours. However, Dr. Winchester has cerebral palsy and requires the use of supports for a majority of the activities he does on a daily basis. This story was included to illustrate how many people may be involved in helping a person reach their goals, how to accept setbacks and how to reevaluate
goals to make sure they are achievable. The Individual Education Plan (IEP) process was also mentioned to explain the connection between setting goals and making academic progress. Module 2 reminded the participants that their IEPs contained goals that were relevant to their academic and social progress. Finally, the concept of goals was reviewed for participants. The last slide of the module contained a link to the module check up.

Module 3 (see Appendix B) contained information about three skills, knowledge of supports, services, and self-knowledge. This module discussed managing one’s feelings about his or her disability and learning about stereotypes. A new mnemonic device, MULES, was introduced in Module 3. Participants learned that MULES stood for My Unique Learning Educational Supports, and that a MULE is someone who knows how they learn, and what supports and services make it possible for them to learn. To demonstrate the acceptance of supports, participants are shown a list of products that are good by themselves, but become better with support. They are also reminded that many of the products and services society uses on a daily basis would not be available or occur if there were no supports. Examples of common limitations students may face in school along with a list of supports and services that can be provided to increase the likelihood of success are provided and explained. Finally, to review this module, participants were reminded of the mnemonic device MULES, and the connection between goals, self-knowledge and supports and services.

Module 4 (see Appendix B) discussed the concepts of self-advocacy and independence. Body language and assertiveness were connected to the process of self-advocacy and one’s ability to become independent. Participants were given examples of self-advocacy and taught
three keys to becoming a self-advocate. Independence was introduced to the participants by asking the participants to think about their lives after high school. The important characteristics of independent people have been discussed and the connection between self-advocacy and independence was stated. To review the two concepts, participants were reminded how body language plays a part in communication. Next, they reviewed how communication was an important sub-skill of self-advocacy. Followed by a short discussion related to the influence self-advocacy can have on participants’ lives. Finally, participants were reminded that the skills of self-advocacy and independence could help them reach their ultimate goals.

Module 5 (see Appendix B) was entitled “Putting it all together: Using your skills to be successful in postsecondary schools”. This was also the last module the participants watched. Key points of this module included introducing the participants to the laws that govern high school special education supports and services, and the laws that govern colleges and universities in regards to the provision of services for people with disabilities. The changes that take place when moving from the high school setting to the post secondary setting were highlighted. This module discussed the responsibilities of the student on the college campus, including the burden of proving they have a disability and the responsibility of the student to discuss their disability with their professors. In this module, all of the skills learned presented to show how they interact and can impact a person’s success in school and throughout life. Finally, the review for this section included a slide entitled “The cycle of success”. This slide clearly demonstrated how the concepts they learned about were inter-related. Finally, the last slide notified the participants that this module was the last one, and it linked the participants to the final section check-up. In
summation, the modified curriculum attempted to introduce middle school students with LD to the concept of self-determination through non-traditional teaching methods that incorporated the use of technology.

The AIR Self-Determination Scale

Four measurement instruments were used in this research study: (a) the AIR Self-Determination Scale (Wolman et al., 1994), (b) the self-determination skills behavior rubric to record implementation of SDS, (c) the student perception assessment/focus group questions, and (d) SDS Module Quick Checks. The AIR Self-Determination Scale (Wolman et al.) was developed to measure students’ ability to demonstrate self-determined behaviors, and to assess the frequency that students have the opportunity to demonstrate self-determined behavior (Pierson et al., 2008; Wolman et al.). The AIR Self-Determination Scale (Wolman, et al.) consists of 30 questions, divided into three sections: knowledge, ability, and perceptions. Each of these sections is represented on the AIR Self-Determination Scale measure (Wolman, et al.). A five-point Likert-type scale is used to measure the frequency or occurrence(s) of a specified self-determined behavior, with (1) meaning the behavior never occurs, to (5) meaning the behavior always occurs. The AIR Self-Determination Skills Scale (Wolman et al.) can be used with students of any age.

The reliability of the AIR Self-Determination Scale is solid. This scale was normed on 450 students in New York and California. The participants’ ages ranged from six years old through twenty-five. A majority of the participants were male (61%) and only 39 % female. The
participants represented the following ethnicities: African American, White, Hispanic, Asian or Pacific Islander and other. Eighty-two percent of the participants were in special education, 72% were on free or reduced lunch, and 79% of the participants had mild to moderate disabilities. The measure is pre-post test and assesses three elements: the capacity-opportunity, home-school, and knowledge-ability constructs. Three reliability tests were conducted on the AIR Self-Determination Scale, (1) an alternative-item correlation, (2) a split-half test, and (3) test-retest measure. Correlations from the alternative-item ranged from .91 to .98; split half-test yielded a .95 for internal consistency. The test-retest measure occurred three months after initial testing, results indicated a .74 correlation between tests. Strong positive correlations were found for items 1-18, capacity element (.68 to .82) and items 19-24 also on factor I, capacity (.59 to .66) Items 23-30, factor two, home-school category had negative correlations (.65 to -.68). More modest to weak correlation factors were recorded on factor 3, opportunity, questions 19-30, and .22 to .29, or weak correlations on items 1-5 in the category of knowledge. Negative weak correlations were found on the following factors: ability, perception and knowledge-ability perception element. Overall, a robust relationship was found between the elements in the data, the scores for each item and the constructs, or elements that the instrument was created to test; 80% of the variation in item scores could accounted for the four elements listed above.

Self-Determination Skills Behavior Rubric

This study incorporated a rubric that was designed to measure participant application of seven self-determination skill behaviors that successful college students with LD possess. The
rubric, the Self-Determination Skills Behavior Rubric, was based on a socially validated rubric created by Durlak and associates (1994). The original rubric was created to measure knowledge and application of (a) academic strengths, weaknesses and compensatory strategies; (b) self-identification and expression of academic strengths, weaknesses, and compensatory strategies to faculty and staff; (c) service needs and necessary accommodations; and (d) the ability to request appropriate, corresponding information accommodations and assistance as needed in high school students with LD. Although the Self-Determination Skills Behavior Rubric created for this study was based on the same four self-determination skills Durlak and associates (1994), it was adapted for use in the VLE by middle school students with LD. The Self-Determination Skills Behavior Rubric measured the participants’ ability to complete the following tasks and documents: (a) UCanFnsh college application, (b) a UCanFnsh Self-Identification Form, (c) UCanFnsh Career Choice List, (d) UCanFnsh Course Registration, and (e) Self-Identification Email Notification to Instructors/Professors.

SDS Module Quick Checks

To assess participants’ comprehension of the seven SDS, five short quizzes were created. Each quiz consisted of three multiple-choice questions. Students in the AW Group and the PPT Group took the five quizzes immediately after viewing each module. Participants did not have to receive a specific score on the quizzes before moving on to the next SDS Module.
Design Validity

The goal of most studies is to provide a strong research base that allows for generalization to a range of people, places, and or things (Bellg et al., 2004). However, the three variables (people, places and things) are also considered large threats to external validity. In order to protect the validity of this study, the researcher recruited participants from all over the metropolitan area to obtain a sample of participants that is representative of the population (Bellg et al.). A second method of ensuring validity was through the construction of relevant treatments (the SDS modules) and the use of appropriate measurement tools to determine success or failure of the relevant treatments. The SDS modules were adapted from a previously created transition-planning curriculum with content validity. The *AIR Self-Determination Scale* (Wolman et al., 1994) is also a validated tool used to measure levels of self-determination in students with disabilities in grades kindergarten through adulthood. The Self-Determination Skills Behavior Rubric was used in the current study was based on a similar socially validated rubric designed to measure the presence of seven self-determination skills needed for success in the post secondary environment. Again, to protect the design validity of the current study, all groups, regardless of the environment where the SDS modules were taught received identical methods and measures of assessment in an attempt to ensure face validity.

Additionally, all aspects of UCanFnsh were based upon meeting guidelines that are empirically validated. The Greenhat Design Guidelines (GDG) guidelines have been established to create a set of best practices when developing a virtual learning environment to use when teaching and training students with disabilities. Brown et al., (1999, 2001) conducted several
studies in which they examined the steps and processes necessary in VLE development to allow ease of use, accessibility and provide the students with as many opportunities for self-directed learning. The Greenhat Design Principles (see Appendix F) were thoroughly adhered to when developing the flow from one activity to another, beginning with one’s arrival at UCanFnsh’s Orientation Point and ending when the participants exited UCanFnsh.

Focus Group Questions

Focus group questions were developed to determine social validation of the VLE through student’s perceptions using a brief questionnaire (see Appendix E). Randomly selected members from the AW Group and the PPT Group were asked to participate in an interview with the researcher to answer specific questions related to the study. All interviews were audio and video taped then transcribed verbatim by an outside party. Basic demographic data and students’ previous technology knowledge, technology skill level, knowledge of SDS, knowledge of the transition process, and the relevancy and value of this project were collected.

Research Design

The purpose of this study was to determine whether SDS instruction had an impact on MSS ability to apply SDS behaviors. The dependent variable is the participant’s level of self-determination skills; the independent variable is the self-determination instruction. A mixed-methods design was used to examine the data of the participants in relation to (1) a change in participants’ SDS knowledge, and (2) the participants’ ability to demonstrate SDS tasks. A pre/
post-test randomized three-group experimental design was used to measure whether the participants who received SDS instruction in either a VLE or via PowerPoint presentation increased their level of SDS. All participants completed one post-test measure, *The AIR Self-Determination Scale* (Wolman et al., 1994). To determine whether the environment of the presentation of SDS material had an affect on participants’ ability to demonstrate self-determined tasks or behaviors, a rubric was created to record the occurrences of SDS behaviors (see Appendix D). The rubric is based on an earlier rubric developed by Durlak et al. (1994) and was used to record the occurrence of the three characteristics of SDS behaviors that successful college students with LD display. Finally, the researcher conducted focus groups with select students from the AW Groups and the PPT Groups to determine their opinions and perceptions about: a) their preparedness to transition from high school to college/university and b) the effectiveness of learning in VLE (see Appendix E).

**Research Timeline**

The timeline for student participation for each group consisted of one face-to-face meeting. The meetings began in the morning during a school day; two meetings took place immediately after lunch. Participants in the AW Group took on average one hour and forty-five minutes to complete the study. The PPT Group spent an average of an hour and twenty minutes working on the study materials. The NI Group spent an average of one hour completing the pre/post test measures and the activities (see Table 2). In total, there were 14 days of data collection.
Procedures

Following Institutional Review Board (IRB) approval (see Appendix G) and receipt of the county approved Research Request (see Appendix H), the researcher began recruiting participants for the project from local middle schools. Recruitment began in late January through April of 2009. Participants were not involved in the project until early April. The interventions took place in computer labs in three middle schools. Participants were grouped according to the intervention they received (see Table 4 for a summary of each group’s activities and location). The AW Group would receive their intervention in the VLE, the PPT Group received their intervention in the natural setting, and the NI Group did not receive an intervention. Each group had between 23-25 students. All participants in all groups began the process by completing an online version of the AIR Self-Determination Skills Scale (see Appendix A). The AIR Self-Determination Skills Scale (Wolman et al.) was used to assess participants’ level of self-determination, including areas of strengths and weakness. If requested, any or part of the instrument was read to the participants, otherwise all participants were expected to read and answer the questions on their own, online. After all students completed the first measurement, participants either began watching the SDS modules or completing the SDS tasks.
### Table 4

*Group Activities*

<table>
<thead>
<tr>
<th>Activity &amp; Location</th>
<th>AW Group</th>
<th>PPT Group</th>
<th>NI Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR Self-Determination Scale Pre</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>VLE</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SDS Modules</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>SDS Modules Quick Checks</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>UCanFnsh College Application</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Self-Identification Sheet</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Career List</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Course Registration</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Self-Identification Email</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>AIR Self-Determination Scale Post</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The AW Group

The AW Group received instruction within the VLE. Every student in the AW Group had access to a desktop personal computer (PC). After the participants completed the SDS measure, a thank you message appeared with instructions to proceed to the next part of the study. The AW Group’s participation took place in the virtual location called ‘UCanFnsh’ in AWEDU (see Figure 1). Before watching any SDS modules, participants accessed the Internet and logged onto 80
AWEDU. Upon initial entrance into AWEDU, participants were at the origination point, or home page. Participants accessed UCanFnsh by teleporting to the world from the AWEDU home page. Upon arrival at UCanFnsh, each participant, represented as an avatar, was instructed to locate the Jennings Hall (JH) sign at the Orientation Point (see Figure 1) and teleport there by clicking on the picture of JH (see Figure 2). Once inside JH, students were directed to locate the blue banner on the staircase in the lobby. The blue banner directed student participants to go upstairs to watch the SDS modules (see Figure 3 and Appendix B).
Figure 2 Jennings Hall

Figure 3 Jennings Hall Lobby
Once inside the classroom where the students viewed the modules, the participant went to an unoccupied workstation and began to view the SDS modules (see Figure 4). To begin watching the modules, the participants clicked on the monitor in front of them that said *Module 1* (see Figure 4). The last screen on Module 1 told the participant to “click on the monitor with the yellow Pegasus” to take the short three questions check-up (see Appendix J). Following the completion of the check-up, the participants returned to the first set of monitors to where they viewed the second, third, fourth, and fifth modules and answered the check-up questions. Again, student participants were expected to complete these processes by themselves. The researcher and a volunteer were present in case any type of assistance was required. Assistance that consisted of repeating the directions, or reading the screen/direction was provided. The volunteer noted the types and occurrences of assistance (see Appendix K).
The SDS instruction is modified from the self-determination focused transition-planning curriculum, *Whose Future Is It Anyway?* (Wehmeyer & Lawrence, 1995; Wehmeyer, Lawrence, Garner, Soukup, & Palmer, 2004). As provided in Figure 4, the SDS modules for this study consisted of five PowerPoint presentations that contained information and strategies on seven key SDS: (1) decision-making; (2) goal-setting; (3) requesting supports and services; (4) independence; (5) ADA & 504; (6) problem solving; and (7) academic strengths, weaknesses, evaluation and reinforcement.

All modules in *Whose Future Is It Anyway?* are based on a thorough review of the self-determination and transition literature and were shortened (modified) to fit the needs of this study. Comprehension of each skill was checked immediately following each section. Following each skill presentations students clicked on a hyperlink for a specific zoomerang.com survey that
corresponded to the module they had just viewed. Students completed three multiple-choice questions on each skill set via multiple-choice questions with four choices, A, B, C, or D. All scores from the separate sections of the comprehension checks were saved. Content mastery was not required to move from one SDS module to the next.

After the modules were viewed, students began the process of applying SDS on the college campus within the VLE (see Figure 5). The first task involved the students going to the Registrar’s Office, located on the first floor of JH (see Figure 6). Once there, the participants were directed by a sign in the Office of Student Affairs to complete the UCanFnsh College Application (see Appendix L). In order to complete this task, participants had to walk up to the picture on the wall and click on the words *UCanFnsh College Application*. The Zoomerang link that corresponded to the college application would be displayed on the right side of the participant’s monitor, which allowed the participant to see the VLE and the admission application. Participants were asked to fill in (type or choose an answer from a pull-down menu) basic demographic information (full name, full address, date of birth, etc). The UCanFnsh College Application was modeled after several existing college applications. Participants were asked to provide answers to questions beyond basic demographic information, all of which required the participant to practice applying at least one of the SDS. Most questions on the application required participants to answer questions as if they were currently preparing to graduate from high school. For example, one question on the application asked the student when they intended to begin coursework at UCanFnsh. The participant had five choices: (1) Summer 2009, (2) Fall 2009, (3) Spring 2010, (4) Summer 2010, or (5) Fall 2010. The application also
included a yes or no question where the student was able to acknowledge the existence of his or her disability. Two adults were present in the real world setting to assist any participant who requested help. Upon application submission, the participants were prompted to check their application status by clicking on a purple arrow at the bottom of their screen. The purple arrow directed them to a screen that displayed a letter of acceptance (see Appendix M). Directions, instructions, and the location of the next activity were provided to the participants after reading the acceptance letter.

Figure 5 UCanFnsch College Campus Buildings
The second activity occurred in the Student Resource Center (SRC), located on the second floor of JH (see Figure 7). In order to establish themselves as a student with a disability at UCanFnsh, participants were told to complete the self-identification form (see Appendix N). On the wall in the SRC, the participants were instructed to find the picture with the phrase *Self-Identification Form* and click on the picture. After the object was clicked, their monitor displayed both the setting in UCanFnsh and the self-identification form to be completed. Instructions to fill out the student self-identification form were displayed on the screen. Participants were told to complete the form to the best of their ability and submit the form by
clicking on the purple arrow at the bottom of their screen. The self-identification form contained two types of questions, (1) basic demographics and (2) disability specific information. The basic demographic questions on the self-identification form were: (1) name, address, city, state zip code, (2) participants home and/or cell phone number, and (3) participants’ email address. All of the basic demographic questions required the participant to type his or her answers. If this task was too difficult, the participants were able to request assistance from one of the adult volunteers in the computer lab. As stated earlier, as a condition to participate in the study, the participants were to be aware of their disability. Therefore, the second group of questions was related to the individual’s disability. Specifically, the participant’s knowledge of how his or her LD affected learning, the types of supports and services currently used, academic strengths and weaknesses, and current knowledge of assessments used to show evidence of a learning disability. Questions in the second section of the self-identification form required the participant to read the question and chose an answer from a dropdown menu. Additionally, students were able to use their Basic Demographic Sheet (see Appendix O) as a reference if needed.
After the information was saved, the next set of instructions directed participants to leave the SRC and return to the Registrar’s Office to the first floor of JH. The third task the participants completed involved choosing a career. This task allowed participants to practice decision-making. Once in the Registrar’s office, participants clicked on the picture that says Career List and chose a degree and a plan of study (see Figure 8). The Career List (see Appendix P) displayed the list of UCanFnsh colleges and at least four careers associated with a degree in each discipline. After participants’ read the Career and College list, they were instructed to locate the career they were most interested in pursuing. If their first or second career choice were not listed, they were instructed to choose their third career choice, or to choose the career that would be most similar to their ideal career. The directions on the Career List informed the participants that after their selection, but before they submitted their choice, they would need to remember which College they chose. After their selections were submitted, participants were instructed to
leave the Registrar’s Office and teleport to the Seven Colleges building and proceed to the Seven Colleges Welcome Center (see Figure 9).

Figure 8 Career List Activity

Figure 9 Seven College Welcome Center
Inside the Seven Colleges Welcome Center, participants were to find their College, and click on the picture (see Figure 10). After clicking on the picture that represented their chosen College, they were teleported into the appropriate College office. Participants were instructed to select a career from the options within the room (see Figure 11). To chose a job, the participant clicked on the title of the occupation. After the occupation was selected, the participants began the course registration process (see Appendix Q). Each college had one section of courses specific to the career choices and three sections of general lower-division courses. Each section contained four courses and the corresponding days and times each course was offered. Students were required to make several decisions regarding their course registration. For example, participants made course selections based on class meeting days and times (morning, afternoon, or evening) as well as ensuring their course dates and times did not overlap. After registration was complete, participants received a message on the computer screen with instructions for students to complete the next task, filling out a form called the New Student Information Email (see Appendix R).
To send the New Student Information Email, participants returned to the Registrar’s Office in Jennings Hall (see Figure 12). Directions to complete the email along with a brief explanation of the email were located at the top of the Zoomerang webpage. To properly complete the email, participants were to read the email in its entirety and fill in the correct information as it relates to him or her. Once the email was complete, the participants were directed to send it to their instructors. The New Student Information Email provided participants
with an opportunity to practice three critical self-determination skills: (a) self-identification, (b) self-advocacy, and (c) self-knowledge. For example, participants were required to choose their disability from a dropdown menu, identify which accommodations they had used with success in the past, and then practice advocating for their right to receive services provided by the SRC. The final piece of information the participant completed included providing their email address and phone number in case the instructor needed to make further contact. After the email was sent to the instructors, the students received a message that thanked them for their participation in the study. They were asked to return to the origination point in UCanFnsh to exit the world. Participants were advised that their last task was to complete the AIR Self-Determination Scale post-test (Wolman et al., 1994).
Figure 12 Self-Identification Email
The PPT Group

Following the completion of the *AIR Self-Determination Scale* (Wolman et al., 1994) pre-test measure, participants in the PPT Group watched and listened to the five SDS modules. The AW Groups and the PPT Group watched the same SDS PowerPoint modules. The difference between the two groups was location. The AW Group watched the modules in a classroom in the VLE UCanFnsh, while the PPT Group watched the modules in a computer lab classroom in the natural setting. The SDS modules are based on Wehmeyer & Lawrence’s (1995) transition planning curriculum, *Whose Future is it Anyway?* The researcher reduced the original 36-lesson curriculum to five modules. The contents of the modules teach the seven skills (decision-making, goal setting, supports, services, and self-knowledge, self-advocacy, independence, and rights and responsibilities of IDEA, ADA, and Section 504 of the Vocational Rehabilitation Act) and tasks to help students with disabilities learn and practice self-determination. The seven skills taught in the SDS modules are the updated version of the seven SDS Durlak and associates (1994) taught their high school participants (see Table 5) and mirrored the skills found in UCanFnsh. The content of the modules was recorded and available for participants to listen to if they chose.

After watching each module, participants in the PPT Group took the same comprehension check-ups that the AW Group completed. Students in the PPT Group clicked on a hyperlink at the end of each module that took them to zoomerang.com where they accessed the three multiple-choice questions for each skill (see Appendix J). Each multiple-choice question had four choices, A, B, C, or D. All scores from the separate sections of the comprehension checks were saved. No level of content mastery was required to move from one SDS module to the next.
Students’ comprehension checks scores were compared to the observation rubric scores in an attempt to determine if a relationship existed between participants’ mastery of SD concepts and their ability to apply SDS.

Table 5 Self-Determination Modules

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Skills Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1, Decision Making</td>
<td>Decision Making, Problem Solving</td>
</tr>
<tr>
<td>Module 2, Goal Setting</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>Module 3, Supports, Services, &amp; Self-Knowledge</td>
<td>Requesting Supports &amp; Services, Self-Knowledge</td>
</tr>
<tr>
<td>Module 5, Putting it All Together: Using</td>
<td>ADA &amp; 504, Decision Making, Independence,Requesting Services &amp; Supports, Self-Knowledge</td>
</tr>
</tbody>
</table>

After all SDS modules were watched and all comprehension checks were taken, an adult volunteer read the skill application process to student participants in the PPT Group (see Appendix S). The volunteer also explained to the student participants that the tasks and activities they were asked to complete were associated with the information they just watched, or SDS. After the instructions were read and any questions were answered, participants were asked to
click on the link on the computer screen to begin the first task. All participants were asked to fill out an Application for College Admission (see Appendix L). Students were instructed to fill out the form in its entirety and save the admissions application by clicking on the submit button at the bottom of their computer screen. Participants were asked to fill in or type basic information such as: (a) full name, (b) full address, (c) date of birth, (d) phone number, (e) email address, (f) citizenship, (g) expected degree type (two-year or four-year), (h) expected status (full-time or part-time), (i) name of current school, (j) city and state of current school, (k) teachers names, (l) expected year of high school graduation, and (m) intended major (if known). The application included a yes or no question where the student was able to acknowledge his or her disability. An adult volunteer was present to assist any participant who requested help. Any assistance that was provided was recorded on a sheet called Volunteer Notes (see Appendix K). Admission was granted to all participants after they completed and submitted their online application. Following application submission, a thank you note appeared on the computer screen. Directions and instructions for the next activity were included in the thank you message.

The second task involved the completion of a self-identification form (see Appendix N). The participant followed a link on the bottom of the thank you message page, which took them to the student self-identification form. Instructions to complete the student self-identification form were displayed on screen. Participants were asked to complete the form to the best of their ability and save the file. The self-identification form contained two types of questions, (1) basic demographics and (2) disability specific information. The basic demographic questions were: (1) participants name, address, city, state zip code, (2) participants home and/or cell phone
number, and (3) participants’ email address. All of the basic demographic questions required the participant to type his or her answers. If this task was too difficult, the participant was told to request assistance. The second group of questions related to the individual’s disability. Specifically, the participant’s knowledge of how their LD affects their learning, the types of supports and services they use, their academic strengths and weaknesses, and their knowledge of assessments used to show evidence of a learning disability. Questions in the second section of the Self-Identification form required the participant to read the question and chose an answer from a dropdown menu. The volunteer or the researcher was available to assist any participant who required assistance. All requests for assistance were recorded in the Volunteer Notes (see Appendix K). After the form was completed, a thank you message appeared on the computer screen that provided instructions and directions for the next activity.

On the top of the page of the next activity, participants were instructed to read through a list of jobs that required a 4-year degree (see Appendix P). The participant was instructed to choose the Bachelor’s degree option from the dropdown menu on the Job List. Next, he or she registered for classes that were specific to their chosen college and job. Participants were required to make several decisions about course registration. The decisions involved choosing the courses for which to register. Participants made their course selections based on the number of class meetings per week (Monday, Wednesday, Friday courses versus Tuesday, Thursday courses), class meeting times (morning, afternoon, or evening) as well as ensuring their course dates and times do not overlap. After registration was complete, the students received a thank you message with a link to the next activity.
At the top of the next page, participants were given the opportunity to self-identify to their instructors via email (see Appendix R). The participants completed the email and sent it to their instructors. Directions to complete this form and a brief explanation of the form were located at the top of the webpage. There were three purposes to this task, they were to provide an opportunity for the participant to: (1) practice self-identifying to an instructor; (2) practice self-advocacy by advocating for their right to receive services provided by the SRC; and (3) demonstrate self-knowledge by indicating the accommodations that have helped them achieve academic success. Participants read the New Student Information Email and filled in the correct information as it related to him or her. For example, participants were required to acknowledge their disability and check the accommodations they are familiar with and/or have used. A list of accommodations was provided for the participant. The final piece of information the participant completed included providing their email address and phone number in case the instructor needed to make contact. After the email was sent to the instructors, the students received a message that reminded them to complete the post-test before leaving the classroom. After completing the post-test, the students in the control group left the computer lab classroom and returned to their regularly scheduled class.

The NI Group

After completion of the pre-test measure, participants in the NI Group completed the same skill applications that the AW Groups and the PPT Groups completed (see Table 5). Each participant sat at a computer and accessed the college application (see Appendix L), self-
Participants were asked to complete all five activities that the AW Groups and the PPT Groups completed (see Table 4). A volunteer read the directions to the group and explained that the tasks and activities they were asked to do are associated with SDS (see Appendix T). The volunteer and the researcher provided support to the participants as was necessary and recorded any assistance in the Volunteer Notes (see Appendix K). After all activities were completed, participants completed the *AIR Self-Determination Scale* post-test online (Wolman et al., 1994).

**Fidelity of Implementation Procedures**

Fidelity of treatment strategies are employed to monitor and enhance the accuracy and consistency of an intervention for two reasons: (1) to ensure it is conducted as planned and (2) to make sure each participant receives instruction that is or has been delivered to other participants in the same manner consistently over time (Smith, Daunic, & Taylor, 2007). Thus, through treatment fidelity, researchers can scientifically conclude the impact of an intervention and are able to: (1) determine how an intervention relates to participant outcomes; and (2) enables researchers to understand the potential of the intervention to contribute to a desired outcome (Gersten et al., 2005; Smith et al., 2007). The Treatment Fidelity Workgroup of the National Institutes of Health Behavior Change Consortium (BCC) (Bellg et al., 2004) has created a framework for fidelity treatment that consists of a definition, methodology and measurement of treatment fidelity that will, if carefully followed in sequence, increase the chances of an accurate
appraisal of data. The BCC framework consists of five key areas: (a) study design, (b) training, (c) treatment delivery, (d) treatment receipt, (e) and treatment enactment. When followed correctly, internal validity of the study remains uncompromised and the outcome of the intervention can be attributed appropriately. For the purpose of this study, the BCC’s (2004) framework was employed. Each of the five key areas and the corresponding supporting documents and/or strategies are described in the Table 6. An additional method used to demonstrate treatment fidelity and to provide evidence of the five key fidelity strategies was the researcher’s use of a journal. The journal allowed the researcher to record: (a) any deviations from the intended study procedures, (b) volunteer information, including full completion of the required activities, (c) data collection themes from the focus groups, (d) as a means to reflect on participants’, volunteers’, and the researcher’s performance, and (e) session lengths, dates and types. Smith and associates found that although treatment fidelity is important, acceptable levels of treatment fidelity are difficult to define. Borelli et al. (2005) defined high treatment fidelity as those studies that included 80% or more of the following five key fidelity strategies: study design, training, treatment delivery, treatment receipt, and treatment enactment. The intention of this study is that treatment of fidelity will be at least 80% in all five areas.
Table 6 Fidelity of Treatment

<table>
<thead>
<tr>
<th>Fidelity Areas</th>
<th>Purpose of Area</th>
<th>Evidence of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Design</td>
<td>Aligned with relevant theory/practice; Attends to prepare/implementation setbacks</td>
<td>1. Treatment length (1 session) and session time fit into school calendar; 2. Attrition rate taken into consideration for proper sample size 3. Greenhat Design Guidelines applied for UCanFnsh (see Appendix F)</td>
</tr>
<tr>
<td>Training</td>
<td>Systematic delivery of a quality/effective intervention</td>
<td>1. Researcher journal/reflections of performance</td>
</tr>
<tr>
<td>Treatment Delivery</td>
<td>Monitor intervention implementation and document technique</td>
<td>1. Manual/instructions created for provider use (see Appendices I, S, &amp;T) 2. Checklist of essential components created (see Appendix U) 3. Groups video taped; independent observer reviewed for contamination through use of checklist (see Appendix C)</td>
</tr>
<tr>
<td>Treatment Receipt</td>
<td>Ensures participants comprehend new information provided during intervention</td>
<td>1. All groups take pre and post test measure (AIR Self-Determination Skills) (see Appendix A) 2. Comprehension assessed through completion of transition tasks (see Appendix C)</td>
</tr>
<tr>
<td>Treatment Enactment</td>
<td>Monitor participants ability to employ strategies as appropriate</td>
<td>Focus group interviews conducted with members of AW &amp; PPT Groups (see Appendix E)</td>
</tr>
</tbody>
</table>

Data Collection Procedure

All participants completed the AIR Self-Determination Scale (Wolman et al., 1994) pre and post-tests online, using a survey website called Zoomerang. The researcher compared the scores to determine any gains relative to participants’ knowledge of self-determination. To assure reliability in the data collection process and to prevent researcher bias, all data were collected and exported to SPSS via Zoomerang.
The rubric created for use in the VLE was adapted from Durlak et al. (1994). The authors are researchers and experts in postsecondary planning and education for secondary students with LD. The purpose of Durlak and associate’s (1994) rubric was to examine the effectiveness of the SDS instruction on high school students with LD preparing to transition from high school to post secondary environments. All of the skills used in the original rubric created by Durlak, and associates were used as a basis to create the rubric for this study. However, the rubric was modified to reflect the changes in technology and information gathering process that may manifest by the use of different skill demonstrations than participants in the original study. As a means to avoid contamination and ensure reliability and validity of the study and data, the researcher recruited three volunteers who scored the products related to the rubric.

In order to assure fidelity of treatment delivery, all sessions were video recorded. The video camera was always pointed directly at a wall and did not record any participants’ faces. An adult volunteer lead the sessions for all groups. Study instructions were read verbatim from the manual created for this study (see Appendices I, S, and T). A checklist of essential components (see Appendix U) was completed for each step of the study. Each group leader completed a checklist of essential components. Content comprehension as well as permanent products created by all three groups were recorded and saved through the Zoomerang website. These data enabled the researcher to analyze the results for any differences between groups mean scores and add relevancy to the hypotheses of the study. As an additional method of study validity, and to assure reliable data, a field observer watched the videos of the interventions and completed the checklist of essential components for each group.
Finally, to establish social validity, randomly selected participants in the AW Groups and the PPT Groups were invited to participate in a follow-up focus group. Participants were asked to discuss their experiences related to SDS and learning SDS in a VLE (see Appendix E). Participants’ reactions to the strategies that were used to gauge the importance of SDS and learning in a VLE, along with their level of preparedness to use this strategy in order to acquire and practice new skills were recorded and reported. Participants were asked to disclose any previous knowledge of SDS, their disability, their level of computer use, and any previous experience with virtual learning environments or virtual reality. Participants were also asked which elements of the skills training they felt were most beneficial, which was the least relevant and their level of competence with SDS.

Data Analysis

Data collected from the AIR Self-Determination Scale (Wolman et al., 1994) and the Self-Determination Skills Behavior Rubric were analyzed using quantitative statistics. To examine any differences between groups’ ability to complete activities associated with self-determined behavior, a Multiple Analysis of Variance (MANOVA) was conducted. Participant scores and responses were imported into SPSS and a MANOVA statistical procedure was utilized. Significance for this study was set at a .05 level. MANOVAs are used to determine whether significant statistical differences exist between groups when more than one dependent variable is present (Creswell, 2003, 2008; Shavelson, 1996). While it was possible to conduct separate one-way Analysis of Variances (ANOVAs) to determine a difference in participant knowledge
between groups, by doing so, power would be decreased and the risks of making type II errors increases (Creswell, 2008).

Two additional quantitative statistical methods of analysis were conducted, a Kruskal-Wallis test, and a paired samples t-test. A Kruskal-Wallis test was conducted to analyze data that was collected from the AIR Self-Determination Scale (Wolman et al., 1994). The post intervention data from the AIR Self-Determination Scale (Wolman et al.) were imported into SPSS and Kruskal-Wallis test was calculated to determine if statistically significant differences existed between groups’ mean scores because of the type of SDS training. Statistical significance was set at .05, which means that the likelihood that the results of the study occurred by chance were one in 20. Pre and post intervention scores on the AIR Self-Determination Scale were imported into SPSS. A paired samples t-test was computed to determine if there were any changes to participants’ self-determination skills following the intervention. Qualitative data were collected from focus group interviews. The qualitative data were analyzed using a phenomenological approach. Phenomenological qualitative approaches focus on participants’ experiences and personal interpretations of their surroundings. All interviews were recorded with audio and visual tools. An independent person transcribed the recorded interview responses and analyzed participants’ replies related to participants’ perceptions of their experiences (Glesne & Peshkin, 1992).

The statistical level of significance for this study was set at .05 (α=. 05), power was set at .80 and the expected difference in the means between the control groups and the experimental group was one standard deviation. A conservative estimate of the number of participants needed
in the study was 78 (Guilford & Frunchter, 1978). The researcher used a variety of resources to determine an accurate sample size for the population of students being studies including journal articles, online calculators and several textbooks (Creswell, 2008; Guilford & Frunchter, 1978; Machin, Campbell, Fayers, & Pinol, 1997). However, sample sizes ranged from a low of 36 to the highest estimate of 78 and averaged 58. The determination to use the most conservative estimate of sample size (78) was made to avoid the likelihood of detecting a difference between the groups’ mean scores when there was actually no difference.

In order to decrease the chances of contaminating the reliability of this study, the researcher built in several methods to ensure consistency and repeatability. All observers and interviewers were trained thoroughly to decrease the risk of introducing any error. Second, to reduce the chance of incorrectly scoring and/or entering data into SPSS, all data were collected in Zoomerang, downloaded, and imported into SPSS. Next, results (scores) of specific statistical analyses that were used to norm each of the measurement tools, such as Chronbach’s alpha, domain correlations were compared to the results of the same analyses for this project to see if any measurement error was evident. Finally, to limit the negative effects of flaws in the design of the study and any researcher and/or observer bias, the findings were triangulated using: (a) data triangulation, (b) investigator triangulation, and (c) methodological triangulation. Chronbach’s alpha coefficients of internal reliability were calculated for all four variables, (a) capacity, (b) opportunity, (c) school, and (d) home ranged from .72 to .84, which exceed the threshold of .70 for acceptable social science research (Nunnally & Bernstein, 1994).
CHAPTER FOUR: RESULTS

Overview of Data Analysis

The study investigated the extent that students with learning disabilities were able to learn, and apply self-determination skills in a virtual learning environment. The study sought to answer the following questions:

1. Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment demonstrate significantly more knowledge of self-determination skills than students identified with learning disabilities who receive training via PowerPoint or students with learning disabilities who do not receive self-determination skills training?

2. Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment have higher scores on the AIR Self-Determination Scale (Wolman et al., 1994) than students who do not receive any self-determination skills training?

The association between the independent variable (method of instruction) and the dependent variables (capacity and opportunity to be self-determined) are discussed in this chapter. First, a description of the data collection instruments is presented. Next, participant demographics are discussed. Then, the results of the quantitative and qualitative analyses are provided, followed by a discussion of data reliability, validity, and fidelity of implementation. The chapter concludes with a summary of the results.
Data Collection Instruments

Self-Determination Skills Behavior Rubric

The purpose of this tool was to determine students’ ability to apply self-determination skills. The total score possible on the self-determination skills behavior rubric was five, which was calculated by students receiving one point for each of the five tasks. Participants received points if all sections of the activity/task were complete. If some information was left out or a question was unanswered, the task was considered incomplete and no points were assigned. Data collected from the self-determination skills behavior rubric were analyzed using parametric procedures.

The AIR Self-Determination Skills Scale

The dependent variables in Question 2 were capacity and opportunity. Capacity refers to an individual’s understanding and ability to act in a self-determined manner. Opportunity refers to an individual’s chance to use their knowledge of self-determination skills in a variety of situations. For the purposes of this study, the concept of self-determination was identified as an essential skill for students with learning disabilities as they transition from the secondary environment to adult life. The decision to use the AIR Self-Determination Scale (Wolman et al., 1994) to assess the level of self-determination was based upon the reliability of the instrument to provide an accurate measurement.
Self-Determination Skills Module Quick Checks

Five short Quick Checks (quizzes) were created to examine any differences in SDS Module content comprehension between groups. After watching and listening to each module, participants in the AW Group and the PPT Group answered three multiple-choice questions. Participants were awarded one-point per correct answer and the total number of points possible was 15. Group totals were compared using parametric procedures.

Participant Demographics

Subjects

Seventy-one middle school students with learning disabilities participated in this study. All 71 students were from three schools in one large public school system. A breakdown of the participants by grade revealed that 31% were in sixth grade, 35% were in seventh grade, and 34% were in eighth grade. Twenty-nine participants were female, and 42 were males (see Table 8). When the participant demographics were compared to the diversity of the district, there was an overrepresentation of minorities and participants from diverse backgrounds (50% and 73% respectively) in the population for this study.

When group data were examined, the ratio of female students to male students in the NI Group was even. However, more males than females were in the AW Group (73%), and the PPT Group (64%). Data on grade level distribution among the groups were skewed. Two groups (the AW Group and the NI Group) had almost twice as many seventh grade students as the PPT
Group (57%, 55%, and 30% comparatively). Of the 24 eighth grade students, a majority (15) were in the PPT Group, The same situation was evident among sixth grade students, as 17 were in the PPT Group, followed by five in the NI Group, and three in the AW Group. Table 7 details the descriptive statistics for each group.

Table 7 Final Participant Demographics

<table>
<thead>
<tr>
<th>Race</th>
<th>Gender</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Male</td>
<td>42</td>
</tr>
<tr>
<td>White</td>
<td>Female</td>
<td>29</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N=71*

Setting

Of the five middle schools in the Central Florida region originally contacted to participate in this study, three schools contributed to the 71 students involved in the research activities (see Table 8). In total, approximately 400 parent/guardian consent forms were distributed to the population of middle school students with learning disabilities at three schools. Of the 400-parent/guardian consent forms distributed, 91 were returned to the researcher. Although 91 parent/guardian consent forms were returned, 84 students originally agreed to participate in the
study. During the course of the study, 13 students dropped out. The study population consisted of 71 students who completed all tasks and measures. Twenty-one parent/guardian consent forms were returned from School One, and 18 students participated. One student was absent during data collection due to out-of-school suspension and one student decided he did not want to participate after he began the study. The researcher was advised to contact the parents of the 21st participant prior to group assignment and study participation to confirm parental consent. Parent consent was not obtained and the student did not participate in the study. Sixteen parent/guardian consent forms were returned from School 2. Of the 16 willing participants, a total of 12 students participated in the study. Consequently, there were three field trips (one per grade level) scheduled during the three days of data collection. Fifty-four parent consents were obtained from School 3, a total of 41 students participated in the study.
Table 8 *Sample and School Demographics*

<table>
<thead>
<tr>
<th></th>
<th>School 1</th>
<th></th>
<th>School 2</th>
<th></th>
<th>School 3</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Black</td>
<td>2</td>
<td>11%</td>
<td>5</td>
<td>42%</td>
<td>5</td>
<td>12%</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>School Black</td>
<td>118</td>
<td>8%</td>
<td>123</td>
<td>9%</td>
<td>119</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Hispanic</td>
<td>11</td>
<td>61%</td>
<td>4</td>
<td>33%</td>
<td>23</td>
<td>56%</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>School Hispanic</td>
<td>537</td>
<td>37%</td>
<td>451</td>
<td>32%</td>
<td>855</td>
<td>72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample White</td>
<td>5</td>
<td>28%</td>
<td>3</td>
<td>25%</td>
<td>10</td>
<td>24%</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>School White</td>
<td>652</td>
<td>45%</td>
<td>753</td>
<td>53%</td>
<td>190</td>
<td>16%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Asian</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>School Asian</td>
<td>89</td>
<td>6%</td>
<td>44</td>
<td>3%</td>
<td>24</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Other</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>School Other</td>
<td>57</td>
<td>4%</td>
<td>47</td>
<td>3%</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Sample</td>
<td>18</td>
<td></td>
<td>12</td>
<td></td>
<td>41</td>
<td></td>
<td>71</td>
<td></td>
</tr>
</tbody>
</table>

**Research Question 1**

*Do middle school students (MSS) identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment demonstrate significantly more applications of self-determination skills than students identified with learning disabilities who receive self-determination skills training via PowerPoint or students identified with learning disabilities who do not receive SDS training?*
To determine if learning in the virtual learning environment was related to a greater number of incidences of self-determination skills application, a Kruskal-Wallis test was conducted. Initially, a one-way between-groups ANOVA was to be conducted to compare mean scores on the Rubric between groups. However, the assumptions for a one-way ANOVA were not met. The Shapiro-Wilk’s Test for Normality revealed that the data were not normally distributed. Therefore, a Kruskal-Wallis, the non-parametric equivalent to an ANOVA, was computed. The task score as the dependent variable. No statistical significance was found between groups’ on their application of SDS on the five activities in the Self-Determination Skills Behavior Rubric ($\chi^2=1.9$, $df = 3$, $p = .4$).

Since the data were not normally distributed, it was impossible to compare differences between groups’ mean scores as originally planned. The Kruskal-Wallis statistic measures the medians of two or more groups’ data and ranks the individual scores by determining where that number falls in association with the median. For the purposes of this instrument, SPSS was used to analyze all of the individuals’ scores in each group and ranked them from the smallest score (0) to the highest (5). The researcher then examined the rankings to determine a pattern of distribution (see Table 9). The median score on the rubric was a three out of five. The mode was a score of four out of five.

Median scores of three groups occurred more frequently with the two groups who received SDS training, then with the NI Group who did not receive any intervention. As indicated by the Kruskal-Wallis, the difference between the frequencies of completed activities was minimal. However, members of the AW Group, who were asked to apply their knowledge of
SDS in a simulated college setting, had a lower task completion rate than either of the other groups. Additionally, a majority of the AW participants scored either right at the mean or below the mean, indicating fewer participants were able to display SDS knowledge on the assigned tasks. Overall, 50% of the participants completed at least four of the five tasks. The PPT Group had the highest rate of task completion, with a total of 16 scores at or above a four. Despite the small amount of variability between the distributions of rankings between groups, the data from this measure show that the method of instruction had no impact on participants’ application of self-determination skills.

Anecdotal evidence suggests that gender influenced previous exposure to and interaction with virtual environments for focus group participants. When asked if the participants had ever used virtual environments before participating in the study, the males in the group consistently spoke of the multi-player, ongoing game, World of Warcraft. When the female focus group participants were asked the same question, two differences were noted. First, fewer females had used virtual environments than their male counterparts. Only three females had previous exposure to virtual environments, whereas six of the seven males from the focus groups reported using a virtual environment prior to participating in the study. Second, when the female focus group participants were asked about their previous exposure to virtual environments, they identified with the Sims, a game that simulates family life and allows users to create characters whose moods and desires can be controlled.
Table 9 *Task Frequency Scores*

<table>
<thead>
<tr>
<th>Score</th>
<th>AW</th>
<th>NI</th>
<th>PPT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>11</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>84</td>
</tr>
</tbody>
</table>

*Note.* AW = Activeworlds Group; NI = No Intervention Group; PPT = PowerPoint Group

Self-Determination Skills Modules Quick Check Results

To determine if learning in the virtual learning environment was related to higher overall group scores on the SDS Module Quick Checks, the number of correct answers per module were calculated and compared between the AW Group and the PPT Group. Each Quick Check included three questions. Questions were worth one-point; therefore, the each participant had the opportunity to score three points per Quick Check. Data collected from the results of the five Quick Checks revealed that the AW Group outscored the PPT Group in four of the five SDS Quick Check Modules (Decision Making, Goal Setting, Self-Advocacy and Independence, and
Putting It All Together, see Table 10). The PPT Group answered more questions correctly about Module 3, Supports, Services, and Self-Knowledge.

Table 10 SDS Module Quick Check Scores

<table>
<thead>
<tr>
<th>SDS Module</th>
<th>AW Group</th>
<th>PPT Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1: Decision Making</td>
<td>70</td>
<td>46</td>
</tr>
<tr>
<td>Module 2: Goal Setting</td>
<td>67</td>
<td>40</td>
</tr>
<tr>
<td>Module 3: Supports, Services, and Self-Knowledge</td>
<td>51</td>
<td>63</td>
</tr>
<tr>
<td>Module 4: Self-Advocacy and Independence</td>
<td>77</td>
<td>42</td>
</tr>
<tr>
<td>Module 5: Putting It All Together: Using Your Skills to be Successful in Postsecondary Schools</td>
<td>74</td>
<td>47</td>
</tr>
</tbody>
</table>

Note. AW Group = Activeworlds Group; PPT Group = PowerPoint Group

Research Question 2

Do middle school students (MSS) identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment have higher scores on the AIR Self-Determination Scale (Wolman et al., 1994) than students with learning disabilities who receive self-determination skills instruction via PowerPoint or students with learning disabilities who do not receive any self-determination skills training?

Using the post intervention scores on the AIR Self-Determination Scale (Wolman et al., 1994), a Multivariate Analysis of Variance (MANOVA) was computed to compare the mean
differences in the composite variable (capacity and opportunity) between the intervention and control groups of middle school students with learning disabilities. In addition to the main research question that investigated the main effects, a MANOVA allowed investigation of the interaction effect of the dependent variables. For this study, the interaction effect question was, “Does the change in the composite variable effect post intervention mean SDS scores equally across all three groups?”

Prior to data analyses, assumptions for MANOVA were addressed. A Box’s M Test of Equality of Covariance indicated the assumption of covariance was met \( M = 18.14 \). A Levene’s Test of Equality of Error Variances revealed statistically non-significant homogeneity of variances for each dependent variable. Linearity and absence of multicollinearity assumptions were examined and were also insignificant. Finally, effect sizes for all four variables were reviewed and found to be insignificant. However, a Shapiro-Wilk’s Test of Normality showed that the data from the dependent variable opportunity (opportunity*ppt) was not normally distributed \( W = .01 \). Q-Q plots for the dependent variable opportunity revealed that the points were negatively skewed. Data were transformed in SPSS and a linear regression was performed to remove outliers.

The results of this MANOVA indicated that the post intervention scores on the combined variable (capacity* opportunity) were not affected by the method of self-determination skills instruction (Wilk’s \( \Lambda = .99; F (2, 64) = .47 \)). Additionally, univariate between-subjects tests showed that there was no difference in groups’ means on the capacity, or the opportunity section of the AIR Self-Determination Scale (Wolman et al., 1994) (see Table 11). Thus, the interaction
effect did equally affect the post intervention SDS scores across all three groups. All three partial eta squared statistics are small (cp ty*oppt = \( \eta^2 = .14 \), capacity = \( \eta^2 = .04 \), and opportunity = \( \eta^2 = .28 \)).

Table 11 *Multivariate Tests*

<table>
<thead>
<tr>
<th>Wilk’s’ Lambda</th>
<th>F</th>
<th>Df</th>
<th>Error Df</th>
<th>Significance</th>
<th>Partial eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>.99</td>
<td>.47</td>
<td>2</td>
<td>64</td>
<td>.63</td>
</tr>
</tbody>
</table>

A paired samples t-test was conducted to determine if there was a difference in groups’ scores on the *AIR Self-Determination Scale* (Wolman et al., 1994) from pre intervention to post intervention (see Table 12). Three paired samples were tested: (a) pre overall-post overall, (b) pre capacity – post capacity, and (c) pre opportunity – post opportunity. Statistical significance was found between the pre capacity scores (\( M = 45.00, SD = 7.09 \)) and post capacity scores (\( M = 65.35, SD = 13.10 \)), \( t (70) = -11.4, p < .001 \) (two-tailed). These results indicated that participants’ knowledge and ability to display self-determination skills increased from pre to post intervention. A comparison of the pre overall test scores (\( M = 87.45, SD = 13.96 \)) and the post overall test scores (\( M = 89.42, SD = 17.01 \)), uncovered no statistically significant change in participants’ overall knowledge of self-determination skills, \( t (70) = .78, p < .44 \). Further examination of the data also showed that there were no significant changes in the pre opportunity scores (\( M = 42.45, SD = 8.54 \)) and post opportunity scores (\( M = 43.54, SD = 9.15 \)) as a result of the intervention (\( t (70) = .78, p < .44 \)). The results should be interpreted with caution for several
reasons. First, all scores on from the AIR Self-Determination Scale were self-reported by the participants. No data from teachers or parents were collected to justify or reinforce the students’ report of their knowledge and practice of SDS. Second, the amount of time between pre and post testing was less than three hours. The short period of time between pre and post does not give an accurate depiction of the skill generalization or skill understanding. More time would be necessary to allow additional data collection to see if the participants generalized their SDS and increased their knowledge. Third, the posttest was the last activity in the study. Fatigue or boredom may have influenced their choices. Fourth, students’ may have exaggerated their self-determination knowledge scores on the AIR Self-Determination Scale (Wolman et al.) Students with learning disabilities occasionally miscalibrate their academic and social abilities (Bandura, 1997; Klassen, 2007). Since the AIR Self-Determination Scale (Wolman et al.) is a self-reported measure, some students could have exaggerated their self-determination scores.

Table 12 AIR Self-Determination Scale Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>AIR Self-Determination Skills Scale Score Pre-Intervention</th>
<th>AIR Self-Determination Skills Scale Score Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall</td>
<td>Capacity</td>
</tr>
<tr>
<td>AW</td>
<td>88.7</td>
<td>46.3</td>
</tr>
<tr>
<td>NI</td>
<td>89.6</td>
<td>45.3</td>
</tr>
<tr>
<td>PPT</td>
<td>81.6</td>
<td>41.8</td>
</tr>
</tbody>
</table>

Note. AW = Activeworlds Group; NI = No Intervention Group; PPT = PowerPoint Group.
Fidelity of Treatment

Treatment fidelity impacts the internal and external validity of a study. Adhering to fidelity of treatment lends greater confidence in the study results due to the reduction of variability between treatment groups (Bellg et al., 2004; Kazdin, 1977). When used to design a study to evaluate the efficacy of a research-based theory, treatment of fidelity can help alleviate variability and influence statistical power and effect size (Bellg et al.; Kazdin, 1977). To reduce study contamination and increase internal reliability and validity of this study, the BCC’s framework for fidelity of treatment was followed during study design, data collection, and analysis. These measures were upheld to ensure that the study design would accurately measure the hypotheses. To do so, it was necessary that various aspects of the study were carried out as planned, and that each participant received instruction in a consistent manner, across groups and settings (Bellg et al.; Smith et al., 2007). Each of the five areas (study design, training, treatment delivery, treatment receipt, and treatment enactment) were assessed and supporting documents and/or strategies were completed to assure internal validity of the study. To illustrate this point, an a priori assumption for fidelity of treatment was that it would be at least 80%. Point-by-point inter-rater reliability on the Self-Determination Skills Behavior Rubric (see Appendix D) and the Quick Checks for the AW Group and the PPT Group (see Appendix J) that were scored by the researcher and a non-biased observer were calculated to assure the a prior assumption was met and reliability of the study was upheld.

Fidelity of treatment for the study design highlights the importance of consistency within treatment groups to ensure any effects of treatment are accurately attributed to the intervention.
and not due to outside influences (Bellg et al., 2004). In this study, several strategies were implemented to ensure consistency and reduce the possibility of study contamination. First, this intervention was brief, as it only required one face-to-face meeting for all groups to receive the full intervention. Second, the types of data collected from each group were identical. The only deviation from this strategy was the data collected from the Quick Checks. The NI Group did not take the Quick Checks because they did not receive the self-determination skills training.

Additional strategies built into the study design included scripted curriculums and manuals (see Appendices C, S, and T), the use of volunteer logs to record observations from each session (see Appendix K), and a detailed journal kept by the researcher.

The second component of the BCC’s framework for fidelity of treatment concerns the systematic delivery of an effective intervention (Bellg et al., 2004). Two strategies were used to address training. First, the researcher created a training fidelity checklist for each study group. The manuals were used to teach volunteers the procedures and steps involved in study implementation, thus they provide evidence of training consistency. This process lessened the chance of a false interaction or effect due to an error by the volunteer group leader. The second method used to ensure fidelity of treatment was the use of the journal kept by the researcher. The journal allowed the researcher to record the occurrence of any deviations from the intended procedures. At the conclusion of each session, the researcher completed both the journal and had the volunteer check off each section of the manual she implemented. In all 16 sessions, the volunteers marked full completion (100%) of the required activities. The researcher’s journal supports all sixteen instances.
Treatment delivery involved monitoring the procedures and methods involved in implementing the intervention (Bellg et al., 2004). To control treatment effects that result from differences in session leaders, to monitor within treatment delivery, and to ensure the volunteers followed procedures as outlined in the manual, all sessions were audio and video taped. After the study concluded a random sample of 33% of the 16 session videos were reviewed by three unbiased observers to determine point-by-point inter-rater reliability for eight of the ten items on the Fidelity Checklist (see Appendix C). Inter-rater reliability was 84%. To lessen the possibility of contamination between conditions, the researcher created all data collection materials in triplicate and stored them in separate folders on Zoomerang.com. This procedure ensured that individual groups had their own folders with data collection materials specific to the type of treatment received.

Receipt of treatment fidelity refers to the participants’ ability to apply the skills learned during the intervention. There are three goals in receipt of treatment, (a) check for participant comprehension, (b) check for participant ability to apply skills taught during the study, and (c) check to ensure that participants are capable of performing the tasks required by the study (Bellg et al., 2004). Strategies that were implemented by the researcher to check for comprehension and application of skills included using pre and posttest measures, and the use of tasks to check participants’ ability to perform intervention skills. Additional means to assess receipt of treatment of fidelity was the use of a hypothetical situation where participants were asked to apply intervention skills to show their ability to use the cognitive and behavioral skills taught during the intervention. However, none of the group’s total completion rate was above the a
priori 80%. The group with the lowest completion rate was the AW Group. On average, only 63% of the transition related tasks were completed by members of the AW Group. The PPT Group’s average completion scores were 68%. The NI Group completed the most tasks, and had an average completion rate of 79%. Both of the groups who received SDS instruction had lower completion rates than the control group, who received no SDS instruction. This indicates a possible violation of the receipt of treatment (see Table 13).

Table 13 *Task Completion Rates*

<table>
<thead>
<tr>
<th>Group</th>
<th>Task 1</th>
<th>Task 2</th>
<th>Task 3</th>
<th>Task 4</th>
<th>Task 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW</td>
<td>73 %</td>
<td>88 %</td>
<td>43 %</td>
<td>68 %</td>
<td>44 %</td>
<td>63 %</td>
</tr>
<tr>
<td>NI</td>
<td>96 %</td>
<td>96 %</td>
<td>65 %</td>
<td>75 %</td>
<td>64 %</td>
<td>79 %</td>
</tr>
<tr>
<td>PPT</td>
<td>85 %</td>
<td>97 %</td>
<td>43 %</td>
<td>69 %</td>
<td>14 %</td>
<td>68 %</td>
</tr>
</tbody>
</table>

*Note. AW = Activeworlds Group; NI = No Intervention Group; PPT = PowerPoint Group. Task 1 = college application; Task 2 = self-identification form; Task 3 = career choice; Task 4 = course registration; Task 5 = self-identification email.*

The last method used to determine fidelity of treatment was two-fold. The first method related to the participant’s behavioral ability to generalize SDS knowledge. The second method although similar to the first, addresses the participant’s ability to cognitively use the intervention skills (Bellg et al., 2004). The fidelity of the enactment of treatment skills was difficult to determine due to the limited duration of the study and the limited interactions with the participants at the conclusion of the study. The students who participated in the focus group sessions were able to provide some evidence of implementing treatment skills, however there is
no measure that the researcher can use to provide conclusive evidence of participants actual level of enactment.

**Design and Treatment Validity**

To examine the effect of the treatment on participants, the topic of diversity, and the use of reliable and valid measures were incorporated into the design of the study. Although efforts were made to recruit participants who were representative of the ethnic diversity of metropolitan area, ethnic or minority students were overrepresented. Forty-nine percent of the district’s population is from an ethnic or minority background. In comparison, a total of 74% or almost three quarters of the study participants were from ethnic or minority backgrounds. The second method of design validity was the inclusion of valid and reliable measures and treatments. All SDS modules or the treatment, were adapted from a transition-planning curriculum created in 1995 with established content validity (Wehmeyer & Lawrence, 1995). Two measures were used to determine the effects the treatment had on the population of students, the *AIR Self-Determination Scale* (Wolman et al., 1994) and the Self-Determination Skills Behavior Rubric. The *AIR Self-Determination Scale* (Wolman et al.) is a validated tool designed to measure levels of self-determination in students with disabilities from kindergarten through adulthood.

The second measurement instrument was the Self-Determination Skills Behavior Rubric. The Self-Determination Skills Behavior Rubric that was created for this study was based on Durlak et al.’s (1994) rubric. Their rubric was socially validated to determine evidence of seven self-determination skills in high school students with learning disabilities. To preserve face
validity, all groups received identical methods of treatment and were assessed using the same tools. To limit the effects of design flaws and researcher or observer bias, this study employed the use of (a) data triangulation, (b) investigator triangulation, and (c) methodological triangulation. Finally, social validity of the study was determined from the results of the focus group sessions.

Focus Group Results

The following section provides a description of the responses from the four focus group discussions with AW participants. To examine the relevancy of the sub question, what are middle school students with learning disabilities perceptions of using virtual learning environments to learn about self-determination skills? three types of data tools were used. Data from the focus group sessions were analyzed using Colazizzi’s (1978) six-step approach to phenomenological data analysis.

Focus Group Participants

Sixteen students with learning disabilities from Schools 1 and 3 participated in focus group sessions held at their schools. Four students from School 1 a suburban school with a low percentage of students with learning disabilities (see Table 14) comprised the first focus group. The group met with the researcher in the computer lab during their first block class. The focus group meeting took place five weeks after the intervention and lasted approximately 50 minutes.
Focus groups 2, 3, and 4 took place at School 3. School 3 was an urban, low-income school and had a substantially larger percentage of students who received services for learning disabilities. All focus group sessions at School 3 were held two weeks after the last day of data collection. Groups 1 and 2 met with the researcher for forty-five minutes. The last group from School 3 met with the researcher during their fourth period class for 30 minutes. This group meeting was shorter than the previous meeting with participants from School 3 due to their lunch schedule.
<table>
<thead>
<tr>
<th>Student</th>
<th>School</th>
<th>Race</th>
<th>Gender</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>1</td>
<td>Hispanic</td>
<td>Female</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 2</td>
<td>1</td>
<td>White</td>
<td>Female</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 3</td>
<td>1</td>
<td>Black</td>
<td>Male</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 4</td>
<td>1</td>
<td>Hispanic</td>
<td>Male</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 5</td>
<td>3</td>
<td>Black</td>
<td>Female</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 6</td>
<td>3</td>
<td>White</td>
<td>Female</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 7</td>
<td>3</td>
<td>Hispanic</td>
<td>Female</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 8</td>
<td>3</td>
<td>Black</td>
<td>Male</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 9</td>
<td>3</td>
<td>White</td>
<td>Male</td>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 10</td>
<td>3</td>
<td>White</td>
<td>Male</td>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 11</td>
<td>3</td>
<td>Hispanic</td>
<td>Female</td>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 12</td>
<td>3</td>
<td>Hispanic</td>
<td>Female</td>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 13</td>
<td>3</td>
<td>Black</td>
<td>Male</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 14</td>
<td>3</td>
<td>Hispanic</td>
<td>Male</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 15</td>
<td>3</td>
<td>Hispanic</td>
<td>Female</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Student 16</td>
<td>3</td>
<td>Hispanic</td>
<td>Female</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
The focus group participants were asked questions about their experiences of learning self-determination skills in a virtual learning environment. Participants were informally asked to respond to the following questions: (a) Before you participated in this project, did you know what self-determination skills were? (b) What did you learn about self-determination skills? (c) Do you think you learned more about self-determination skills because you were in the virtual world? (d) Do you think you have used self-determination skills since participating in this project? (e) Have you ever used virtual environments before this project? and (e) What did you like best about this experience?

Phenomenological Analysis

Colaizzi’s method of analysis involves the use of the following six steps:

1. The researcher reviewed the data transcriptions to gain an initial understanding of the results. The transcripts were read several times and notes were kept as themes emerged.

2. Significant quotes or remarks that were directly related to the phenomenon were extracted and duplicate quotes removed,

3. Meaning statements were created for all significant statements. The context in which the significant statements were made was also considered.

4. Meaning statements were collapsed into themed clusters,

5. The themed clusters were reviewed and likened to the original data, and
6. A detailed and thorough description of the phenomenon was produced through evidence gathered from the preceding five steps.

Phenomenological data analysis recognizes the innate biases within the researcher(s) (Creswell, Hanson, Clark, & Morales, 2007). To address this challenge, the researcher incorporated the use of several verification strategies. First, the researcher recruited a volunteer to assist with the focus group data analysis and control for researcher bias. The individual was not associated with the study and had no connection to either self-determination skills or virtual learning environments. Next, both the researcher and the volunteer recorded bias statements before analyzing any of the focus group data. This strategy prevented the occurrence of assumptions or personal biases interfering with the analysis process or results. Third, the investigator and the volunteer employed a method of double-checking each other to ensure that findings could be traced back to the raw data. Finally, the researcher kept a journal where themes that appeared during data collection were recorded. During focus group data analysis, the researcher recorded trends and specific information regarding data analysis. Lincoln and Guba (1995) recommend the use of multiple verification strategies to ensure integrity of the data, and rigor.

Focus Group Themes

Four themes emerged from the participants comments: (a) learning in the VLE, (b) skill generalization, (c) individualization, and (d) suggestions for improvement. Each theme is presented using quotes from participants.
Learning in the VLE

One theme that all members of the AW Group agreed upon was a feeling that they learned more about SDS in the VLE than they would have if the method of instruction had been standard lecture. Most students attributed their feelings about the learning process in the VLE to the level of interest they experienced in UCanFnsh, and being provided with opportunities to have hands on practice. Student 14 said it was a “pre-experience of what I would do in the future to get into college.” This theme was supported by Student 6 who said, “It brought us different places showing us what was going on. The whole going around places to figure things out. Like the jobs, and the questions you do to go with it like go here or go there.” Student 7 added, “It made it more interesting, because when we went in the world we had to go walk around and learn about the different things there.” In addition to the different learning processes involved with learning in the VLE, Student 11 stated that she thought it was helpful because she was a visual learner. She said, “It was good because of the help it gives you from the visual part. Like for me, I learn better that way, when I see things. I think that it was better for me because it (UCanFnsh) is like it is in life.”

Skill Generalization

When the AW participants were asked about their use of SDS since the intervention, several students gave examples of how they had already successfully generalized the skills at home and at school. Four students mentioned coming to the realization that they were already
using SDS when they negotiated (advocated) for things that they wanted. Student 6 gave an example of how she has started to use self-determination skills at home. She shared, “I asked my dad if me and my sister would clean his house for a week where they are living, if he would give us $30 to go to the movies, and he said yes.” In addition, Student 13 was able to give an example of how he realized he was already taking steps to be self-determined very soon after he participated in the study, he stated:

It’s kind of odd, because after all of the decision-making stuff, after three days I had to make all of these decisions. In one of my classes it was basically reflecting on what you have learned in each class and I was thinking, Wow! That’s decision-making and I’m already doing it.

Student 4 said “I have used them (SDS) in class to try and remember all of the work. I just had a quiz come up and I had to use self-determination to help set goals, like what I should study.”

One question the students were asked was how the experience changed or affected their ideas for the future. Student 12 related the project experience and learning about the SDS process to being a computer chip. She said:

I might be saying this wrong, but it’s kind of like we’re computers and it’s a chip in our brain, we’re not really thinking about it, but we’re giving an answer. Then, with the program, we realize we are making decisions about our life. I think it gave us a better view of what it looks like to make better decisions, especially when you go off to high school and college. And you can fill out job applications and all that.

Most of the students enjoyed the opportunity to think about their future and how to begin preparing for becoming an adult. Participant 2 said that she did enjoy thinking about the future, and “…like getting ready for school and going to college. Things you need to learn.” When asked if she had thought about going to college before (participating in the study), she said she had not
thought about it, but was thinking about it now. When asked, “Why now?” Participant 2 responded that she felt that since she has learned about self-determination skills she believes she will have the confidence she needs to go to college. Many of the eighth grade participants also said the opportunity to think about their future made them more aware of how their grades and their decisions were going to affect them next year in high school.

Individualization

Another theme that was mentioned by four students in School 1 and School 3 was the flexibility of the VLE. In these participants’ cases, they appreciated the self-paced learning opportunities that the VLE was able to offer them. Student 11 said, “I enjoyed it because it was easier to learn for me. Because it was pretty much just focusing on me like a one-to-one pretty much. It really got into my head what I heard on the headphones.” Student 15’s response to learning in the VLE was, “It was okay. It focuses on you and you don’t have a whole bunch of people around you like if they are talking, you can’t really hear. You get everything one-on-one and you can keep it in your memory.” Student 3 said that learning in the VLE “would be less stressful. With the program, it’s very creative and it’s like you’re in your own little world.”

Suggestions for Improvement

When participants were asked how this experience could have been improved, the SDS modules were specifically mentioned. Most negative comments related to the SDS modules were about the amount of time that it took to watch all of the modules and an inconsistency with the
Participant 8 said he did not like the experience (watching the PowerPoints) because there were too many of them. Student 11 said “Even though I think I learned a lot it was kind of long for me, and the sounds kept going on and on” Another participant in the same group, Student 10 said “Yeah, it was too long.”

Despite the length and the sound inconsistencies, none of the focus group participants said that they think they would have learned more if they learned about SDS through traditional teaching methods. Most of the focus group members spoke of how they enjoyed the modules and thought they were “in-depth, educational, and entertaining.” All participants said they would be interested in using VLEs to learn more about SDS, and other subjects, such as mathematics and science. Overall, students were very appreciative of the opportunities they had to think about their future and to practice skills that they would need after high school. Three students said that they had never considered college before participating in this study. However, after the experience in the virtual environment and learning about SDS the students said they were now considering going to college. Additionally, ten students recognized the relationship between the SDS steps and processes and the opportunities to attend college.

Greenhat Design Guidelines

The Greenhat Design Guidelines were adhered to during the creation of UCanFnsh. After a review of the world and the activities that occurred in UCanFnsh, a total of three guidelines were not adhered to in this study: (a) widen or increase the space in the viewers line of vision, (b) create dialogue boxes that remain on the screen as necessary, based on the learner’s needs, and
(c) widen doorways and entryways to allow for fewer accessibility problems within the VLE.

Two guidelines were not applicable to the study, and 15 guidelines were followed during the design and implementation process involved in the study.

Summary

In conclusion, study data were analyzed using quantitative and qualitative methodologies, including a Multivariate Analysis of Variance, a Kruskal-Wallis test, a paired t-test, a test of inter-rater reliability, and a qualitative analysis of students’ experience of learning self-determination skills in a virtual learning environment. Minimal evidence exists that would support the use of virtual learning environments to teach middle school students with learning disabilities. Results of a paired sample t-test indicated that there were no significant changes in the overall post intervention scores on the AIR Self-Determination Scale (Wolman et al., 1994) ($t(70) = .78, p < .44$) or on participants’ perceptions regarding the opportunities available to act self-determined at school or at home ($t(70) = .78, p < .44$). Results from the MANOVA revealed no difference between groups’ mean scores on the AIR Self-Determination Scale (Wolman et al) ($F = .47, p > .05, \eta^2 = .01$). Further substantiation of this conclusion was apparent when the results of the Kruskal-Wallis were assessed. The test outcome indicated that there were no differences in the number of participants across groups who were able to demonstrate a clear ability to use self-determination skills to complete a set of five transition specific tasks ($\chi^2 = 1.9, df = 3, p = .4$). The only indication that participants’ knowledge and ability to act self-determined may have been
impacted by the intervention was a 20-point difference in the mean post intervention capacity scores on the *AIR Self-Determination Scale* (Wolman et al.)

The qualitative data gathered from the results of the focus group revealed that students in the treatment group felt as though they learned more about self-determination skills than they would have if instruction had been delivered in a more traditional format. Focus group members discussed several instances when they were able to generalize the self-determination skills they learned in the virtual learning environment to the school and home setting almost immediately. Many participants were also able to provide examples of how they intend to continue to use self-determination skills as they transition into adulthood. Overall, members of the focus group felt that instruction in the virtual learning environment had a positive impact on their level of self-determination skills knowledge and skill application.
CHAPTER FIVE: DISCUSSION

Purpose of the Study

This study investigated the use of virtual learning environments to teach self-determination skills. The sample included 71 middle school students from a large school district in Central Florida who qualified for special education under the category of learning disabilities. Two-thirds of the participants were taught the following seven self-determination skills using two different methods: (a) decision-making, (b) organizational/self-management, (c) self-advocacy, (d) rights and responsibilities, (e) autonomy, (f) self-efficacy, and (g) disability awareness/understanding. These skills were taught to one group using a virtual environment. A second group participated in a more traditional method of instruction, via PowerPoint presentation. A third group served as the control group. The seven self-determination skills were incorporated into five self-determination instructional modules. The modules provided students with the information necessary to complete the following self-determined behaviors in the virtual college environment: (a) acknowledge their disability to their instructors on the college campus, (b) recognize accommodations and compensatory strategies to lessen the impact of the deficit areas, (c) state the specific nature of the disability and the impact the disability has on academic achievement, (d) identify themselves as a person with a disability on the campus at the resource center, and (e) make decisions about their future based on their academic and personal interests.

This chapter summarizes the research findings and the implications regarding the use of alternative methods to teach self-determination skills to students with LD as they prepare to
transition from secondary to post secondary settings. This chapter also provides recommendations and implications for future research, practice and teacher preparation.

Very little research is currently available on the impact of VLE has on digital natives with LD. Throughout the course of this study, the researcher completed several literature reviews regarding the use of technology for this group of students and the transition process. The literature that is available on technology and students with LD falls into one of two categories, (a) assistive technology for students with LD, or (b) virtual learning environments used for people with more severe cognitive disabilities. To date, there is no evidence of a study that has investigated the use of VLEs as a medium to teach SDS to middle school students with LD. The discussion that follows relates of the current study to the results of previous studies that have used VLEs to teach adults with moderate to severe intellectual disabilities. Additionally, the anecdotal evidence from the current study will be used to support the theory that instruction that occurs within a VLE is conducive to the digital natives learning processes.

One of the focuses of this study was to expand the current knowledge base of identifying effective methods to increase successful transitions of students with learning disabilities. Specifically, this study was designed to evaluate the impact self-determination skills instruction had on transitional outcomes (Cobb et al., 2008). Six research design principles identified by past researchers’ were considered during the design phase of this study (Cobb et al). The six design factors were: (a) the use of a multi-component intervention, (b) the use of a large sample size, (c) the use of quantitative statistics, (d) the inclusion of middle school students, (e) the focus on students with learning disabilities, and (f) the focus on transitional outcomes as opposed to
academic interventions. The results of this study provide some assistance to the field of special education related to methods of assistance for students with learning disabilities as they transition to adulthood. A specific concern was the limited impact of the incorporation of self-determination skills training in a virtual learning environment (Algozzine et al., 2001; Cobb et al.; Field, 1996; Fowler et al., 2007; Trainor, 2003).

**Interpretation of Research Questions**

**Research Question 1**

*Do middle school students identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment demonstrate significantly more knowledge of self-determination skills than students identified with learning disabilities who receive training via PowerPoint or students with learning disabilities who do not receive self-determination skills training?*

The results of the transition related task score analysis indicated no significant difference between groups’ ability to apply their knowledge of self-determination skills. Prior to beginning instruction, participants were informally asked about previous knowledge of self-determination skills. Most of the students reported not knowing what self-determination skills were. The few participants who were aware of self-determination skills had limited comprehension of self-determination skills. Overall, hardly any participants were able to provide a correct description or use of the skills. Participants’ lack of self-determination knowledge suggested that they had not been provided opportunities either at home or at school to practice these tasks. The
participants’ limited use of self-determination skills lessened the likelihood of full participation in the transition process. While students with LD generally welcome self-determination skills instruction, they frequently report that opportunities to practice self-determination skills vary considerably (Trainor, 2005). Thus, the lack of self-determination skills training and few opportunities for practice will limit students’ ability to display self-determined behavior on transition activities (Durlak et al., 1994; Trainor, 2005). Since this study was in most cases, the participants’ first experience with both self-determination skills and transition related tasks, the environment where the students learned about self-determination skills would have little bearing on their ability to implement the skills. At the same time, participants acknowledged their limited experience and/or interactions with virtual environments. The new learning environment, while exciting for the students, may have been over stimulating and could explain some of the limited gain in self-determination skills knowledge. Participants in the AW Group were asked to develop two new schemas, the VLE schema and the SDS schema in a short period of time. In short, the results of the task application process could also be attributed to difficulty this group may have faced as they were challenged not only to learn content but also to learn the virtual environment.

A second explanation of the limited results could be attributed to the brevity of the training. The self-determination skill training that occurred during this study took place during one school day, and in all cases, lasted less than four hours. Although Wehmeyer and Lawrence’s (1995) field study on the curriculum Whose Future is it Anyway? is substantially longer than the intervention created for the study, and was created and field-tested with high
school students with intellectual disabilities, the studies yielded similar results. No significant increases were found in pre and post intervention scores on the self-determination measures that were used in Wehmeyer and Lawrence’s field study. However, Wehmeyer and Lawrence felt as though the empirical evidence in conjunction with the anecdotal evidence provided sufficient support that their curriculum did positively affect the study participants’ ability to display self-determined behaviors. Furthermore, Wehmeyer and Lawrence (1995) (like the researcher) attributed the limited success of their curriculum to the brevity of their program, and said, “It may be unreasonable to expect any single-year intervention could overcome years of negative perceptions and beliefs based on students experiences...One attempt to provide control should not be expected to reverse these beliefs.” (p.80).

The result of Durlak et al.’s study (1994) indicated that time was less of a barrier for skill acquisition in high school students with learning disabilities. The results of the investigation showed that participants were able to learn and generalize self-determination skills, albeit with limited success, in a shorter period of time than participants in the Wehmeyer and Lawrence (1995) study, but longer than the current study. The comparison between the this study and the Durlak et al. (1994) study is of considerable importance, as one of the measurement instruments is an adapted version of the instrument Durlak et al. used to measure participant skill acquisition. Participants in the Durlak et al study and the current study were asked to complete a similar set of transition related tasks. However, due to the integration of technology and self-determination skills that were not available in the original study, the author updated and adapted sets of transition tasks. Unlike participants in the current study, Durlak et al.’s high school participants
with LD were trained with a revised version of direct instruction and learning strategy instruction. These high school students with LD were given corrective feedback and provided with more than one opportunity to practice the application of the self-determination skills. In comparison, the middle school students with LD in the current study were also taught using explicit instruction, but were not given any opportunities to practice the self-determination skills before being assessed on their ability to apply the skills. It is important to note that Durlak et al. found that even though participants were able to learn and generalize the self-determination skills, only one of the eight participants showed skill mastery. The results from Durlak et al.’s study also contradict the results from the Wehmeyer and Lawrence (1995) study in that their participants were able to learn and generalize self-determination skills despite the time constraints. One theory that could be drawn from this information is related to prior research conducted on adults with intellectual disabilities (Cagle, 2006). Wehmeyer, Kelchner and Richards (1996) found that adults with intellectual disabilities were overall less capable of displaying self-determined behavior and that ability to display self-determined behaviors are related to the severity of intellectual disability. Cagle (2006) compared the abilities of both groups of students to display self-determined behaviors and found similar results. Students with LD were able to display higher levels of self-determination.

The current study examined the impact self-determination skills had on students’ ability to make successful transitions to adult life. A review of several meta-analyses on self-determination skills revealed numerous teaching strategies that have been investigated including: (a) large group instruction, (b) small group instruction, (c) one-to-one instruction, (d) modeling,
(e) corrective feedback, and (f) commercially developed curriculums (Algozzine et al., 2001, Konrad et al., 2007). Most of the early research on self-determination skills focused on exploring the impact the skills had on behavior. Specifically, self-determination skills were taught to lessen aggressive behavior, to increase effective/proper communication, or to teach the behaviors necessary to participate in IEP meetings. More recently, in response to greater access to the general education curriculum and required participation in statewide assessments, self-determination skills research has focused on increasing the academic success of students with disabilities (Konrad et al.). There continues to be a lack of research about the most effective strategies to teach self-determination skills with the intention of increasing student involvement in the transition process, especially for middle school students with learning disabilities (Lehman, Bassett, & Sands, 1999).

Research Question 2

*Do middle school students (MSS) identified with learning disabilities who receive self-determination skills instruction in a virtual learning environment have higher scores on the AIR Self-Determination Scale than students with learning disabilities who receive self-determination skills instruction via PowerPoint or students with learning disabilities who do not receive any self-determination skills training?*

The statistical analyses revealed no significant differences in groups’ scores on both the Self-Determination Skills Behavior Rubric and on all but one section of the AIR Self-Determination Scale (Wolman et al., 1994). There were significant results from the
administration of the pre-intervention measurement tool and the post-intervention tool on the AIR Self-Determination Scale. All participants regardless of their group affiliation displayed significantly more knowledge of self-determination skills on the capacity section of the AIR Self-Determination Scale. The statistical analyses can indicate two things. First, this group of middle school students with LD overestimated their knowledge of self-determination skills. There was a discrepancy between participants’ self-reported ratings of self-determination and their actual display of self-determination skills. The participants’ average self-determination score was 80; the mean task completion score was 60. This would indicate that either participants’ overestimated their level of self-determination knowledge on the AIR Self-Determination Scale, or the participants’ performance on the transition related tasks was not an accurate reflection of their level of self-determination skills knowledge. When reviewing the literature on students with LD, mis-calibration of academic or task self-efficacy is not uncharacteristic (Bandura, 1997; Gregg, 2009; Klassen, 2007). In this case, it appears that the participants perceived themselves as more capable of exhibiting self-determined behavior then their performance indicated. Researchers have described this phenomenon as a “dual burden”, meaning in this case, the participants failed to recognize their inability to perform self-determination skills (Bandura, 1997; Klassen, 2007). It is also reasonable to relate participants’ self-determination skills mis-calibration to the desire to protect their egos, or self-esteem (Bandura, 1997, Gregg 2009; Klassen, 2007). Second, the results of both measures were reliant on self-reported student data with no consideration or input from parents or teachers. Therefore, it is difficult to accurately assess students’ self-determination skill gains.
Nevertheless, participants in the AW Group scored significantly higher on the SDS Module Quick Checks than the PPT Group. In addition, the anecdotal results of the focus groups revealed that the students who participated in the VLE were able to learn SDS and generalize their SDS knowledge to both the school and home environments. The findings from this study are similar to several studies that have investigated the effects of using VLEs to teach older adolescents and adults with disabilities (Brooks et al., 2002; Cobb, 2007). A study by Cobb et al., (1998) conducted with students with Severe Learning Disabilities yielded an increased confidence and willingness to complete the real-world tasks for which they received training in the VLE. Their study also yielded no empirical evidence. Another study by Cobb et al. used VLEs to teach social skills to students with Autism and also reported similar results. Some of the lower functioning students with Autism were able to comprehend social skills training activities in the VLE, but were not able to complete the social skills tasks independently or generalize the task knowledge from one social setting to another.

The results of the current study and Cobb’s 2007 study were contradictory to Brooks et al’s (2002) study where 24 adolescents and adults with cognitive disabilities were taught catering/vocational skills in the natural setting and in a VLE. In addition to reporting that participants enjoyed the learning process, statistical analyses showed that virtual training scores were significantly higher than workbook training scores. Brooks et al. attributed the phenomenon to participants’ use of procedural memory to complete the tasks.
Limitations

The purpose of this study was to consider how learning in a virtual environment would affect students with learning disabilities ability to learn and apply self-determination skills. The analysis of data should not be interpreted to suggest that VLEs are not effective tools to use with students with LD. Instead, this analysis indicates that the there are several factors, such as the design of the learning environment and the length of the intervention that should be studied further. The questions of self-determination skill acquisition and application were the essential to this study, but the answers were difficult to sort out for a number of reasons.

First, students were exposed to the concept of self-determination and using SDS to help with the transition from high school to the post secondary environment. For a majority of the study participants, this study was the first time either concept had been broached. The exposure all three groups received to both learning processes, SDS and transition process was more than the participants had previously experienced and will be motivational. Although the students in the NI Group did not receive any SDS instruction, they were still able to learn about SDS and the transition process through the application of tasks. Hopefully, this experience piqued their interest in college motivated them to focus on their academic progress and remain aware of the demands of the post secondary setting. In other words, although not all participants showed significant gains in the amount of self-determination skills knowledge and application, the support that the project was able to provide to the students was considerably more than they had previously received from any of their teachers or the school environment. Therefore, the benefits for the students far outweighed the any potential risks.
Next, the sample size and composition was limited by geography, availability, and gender of the volunteers. There is a chance that students who participated in the project were already showing evidence of self-determination skills. This may be true based on the participants’ display of responsibility, which is necessary to return a signed consent form back to school, and ability to make decisions, evidenced by their choice to participate in the study. Another limitation was the reliance on self-reporting student measures and the exclusion of parents and teachers’ input on the measures. Students with LD displayed over confidence in their academic and social ability. The results of this study indicate that this group of students miscalibrated their skills and were overconfident about their self-determination skills. To compensate for the overconfidence, alternative methods could have been used to assess the students’ level of self-determination skills. These methods may provide a more accurate depiction of students’ level of self-determination. Third, overall, males are overrepresented in the LD category of special education and are more involved in gaming technology. In fact, during focus group sessions, when the females were asked about their prior experience(s) with VLEs, their responses usually included the Sims, a game where the players are responsible for the daily activities and life of a digital character. Meanwhile, when asked the same question, the males mentioned the World of Warcraft, an ongoing, multiplayer role-playing game that currently has almost 10 million users. However, the due to the method of data collection, it is impossible to disaggregate the data by gender. Therefore, the impacts of gender on the results of this study are unknown.

The study is also limited by missing data. The data revealed uneven numbers of participants on all different activities. In fact, there was no task or measure that had the same
population. Additionally, although the researcher and at least one other adult volunteer were always present, sample inconsistency could be due to technological issues. To illustrate this point, on the second day of data collection at the third school, the link that took the students from the check up after Module 3 stopped working. Two activities that the AW group were to complete would not allow them to access the website. The researcher created two separate identical task data collection instruments to provide consistency for participants and ensure data collection continued. Data collection for this group in particular was also limited as the number of participants who experienced similar technological issues but did not report the problems is indiscernible. The unknown number of students who had technology issues and did not report the problem resulted in an indeterminate number of incomplete tasks.

Technical problems in addition to the ones described above included numerous links that stopped working, particularly, the Module Quick Checks that were embedded in the modules. Further, the Zoomerang.com website crashed several times when more than four students tried to access the material at once. Another result of technological issues that were relatively unknown was the impact on students’ focus and interest. The time it took to refocus students could have been the difference between the students doing their best, and rushing to complete the project without concern for answers or completion rates.

Recommendations for Future Practice

It is increasingly important for the educational system to adjust to meet the needs of the digital native generation (Simpson, 2005). In 2003, the National Center for Educational Statistics
(NCES) found that the students who were most at risk for failure in the general education setting were those who, on average, spent 27 minutes more per day playing video games. Pioneering researchers in the field of video gaming and 21st century learning feel that a majority of the issues teachers have with this group of students is their apathy toward learning (Gee, 2003; Prensky, 2002, 2004; Simpson, 2005; Squire & Jenkins, 2004). It is far more likely that these students are not apathetic about their education, but instead are hampered by poor, outdated methods of instruction (Prensky, 2001, 2002, 2008; Simpson, 2005). Focus group participants were asked if they felt as though they were able to learn more about SDS then they would have if the researcher had used traditional methods to teach. Every time the focus group members answered the same way, an emphatic “yes!” Focus group members explained that the experience, regardless of the method of instruction, allowed them opportunities to make their own choices, display autonomy, and recognize the relevancy that SDS had on their lives. Future studies will focus on collecting longitudinal data that focuses on how exposure to a virtual college campus in middle school and the subsequent development of SDS over time will impact the frequency of students’ transitions to post secondary environments.

Unlike a majority of the digital immigrant teaching force, digital natives learn by trial and error. To this generation, solving problems is not logic based (Frand, 2000; Oblinger, 2003). With that in mind, it would seem almost impossible for the participants in this study to master the SDS material the first time they had the experience. Therefore, the transition task scores of the AW Group and the PPT Group are aligned with the characteristics found in the literature (Oblinger, 2003). The literature reports that digital natives are accustomed to immediate
feedback, and continue to need this to guide them as they complete activities (Lombardi, 2007; Simpson, 2005). The study was not designed to provide any type of feedback. During the next phase of this research, immediate feedback will be built into the SDS Modules Quick Checks.

Second, the integration of technology itself to teach middle school students self-determination skills is a novel approach to addressing this generation of learners (Oblinger & Oblinger, 2005; Prensky, 2005, 2008). The group of students who participated in this study are part of a generation of children who have technology infused into almost every aspect of their lives (Jukes & McCain, 2008; Prensky, 2001). An inspection of the literature on both digital natives and the facets of self-determination skills reveal the possibility of a mutual influence. For example, Szymanksi (1994) recommended that transition interventions should include self-determination skills that empower students with disabilities. Specifically, Szymanksi (1994) theorized that the creation of an intervention that: (a) allows for the greatest amount of user control, and (b) is designed to allow the student opportunities to establish autonomy. Researchers have identified this group as independent thinkers, who want control over the choices they make (Jukes & McCain, 2008; Lombardi, 2007; Lorenzo & Dziuban, 2006; Simpson, 2005). These students learn by teaching others and by instantly being able to apply new knowledge through authentic tasks in either real world or simulated applications. Digital natives are able to create products that reflect their understanding of content and process, and are empowered to a variety of resources to find the information they need (Jukes & McCain, 2008; Lombardi, 2007; Lorenzo & Dziuban, 2006). Digital natives have a decreased reliance on traditional instructional methods and are able to learn information through a variety of digital media (Heeter, 1992; Lee, 2004;
Oblinger & Oblinger, 2005; Prensky, 2005). In this study, a basic PowerPoint presentation with sound, combined with visual and audio segments strengthened personal learning and were more instructionally relevant to the group of digital natives (Jackson & Crawford, 2008).

**Future research**

Virtual Learning Environments

The majority of participants in this study had little or no prior exposure to self-determination skills and VLEs. It is difficult to determine whether the combined lack of knowledge caused little acquisition of self-determination skills knowledge or if the use of a new learning environment prevented a significant result. To help alleviate this variable, future research should gather previous knowledge and participants prior exposure to VLEs prior to beginning the study. This will help determine the necessity (if any) of assimilation. If VLEs are to be considered tools to enhance the learning experiences for digital natives and digital natives with LD, future research should examine whether a level of exposure to a VLEs is necessary before learning can occur. If there were a need to provide participants with assimilation prior to the learning experience, a range of typical assimilation activities for students with LD would also be of considerable use to the field.

Virtual learning environments have been shown to be successful in teaching similar skills to students with more significant cognitive disabilities although this was not shown in the data collected in this study. The participants in this study were only exposed to a single VLE session, for less than three hours. This limited exposure and lack of learning gains may indicate the need
to include other tools in the learning process in order for VLEs to be effective with students with LD. Students may be so distracted by the graphics and the “game” aspects of the VLE that they are unable to grasp the concepts presented. Increased exposure may decrease their distraction and increase their familiarity, resulting in greater knowledge gained from this tool. Further research could investigate the ideal amount of time a VLE should be used and in what context to produce the greatest results for this population.

Self-Determination Skills

For almost two decades, research has indicated that self-determination skills may be helpful to students with disabilities during the transition to postsecondary settings (Algozzine et al., 2001; Field, 1996; Field & Hoffman, 1997; Wehmeyer, 1992; Wehmeyer et al., 2000; Wehmeyer & Schwartz, 1997). While there is evidence to suggest that self-determination skills training has been successful for some groups of people with disabilities, there is less evidence to suggest that self-determination skills training has the same impact on the transition process for students with learning disabilities (Cobb et al., 2008; Konrad, 2007). First, most of the research on self-determination skills, from the original research through present day, was categorical and focused on students with intellectual and more severe disabilities (Cobb et al.; Field, 1996; Fowler et al., 2007; Trainor, 2003, Wehmeyer, 1992; Wehmeyer & Schwartz, 1997; Wood et al., 2005). As such, the methods that have helped promote positive adult outcomes for students with intellectual disabilities and severe cognitive disabilities are different from those used with students with learning disabilities (Field, 1996; Trainor, 2003). Second, few self-determination
studies have focused on teaching self-determination skills to early adolescents (Algozzine et al., 2001; Wehmeyer et al., 2004). However, there is evidence to show that students’ career and college goals are often shaped in middle school (Maryland State Department of Education, 2008; Wimberly & Noeth, 2005). Third, self-determination skills research has an overabundance of single subject design studies, which limit the generalizability of the findings much more so than multi-participant studies (Cobb et al.). Finally, very few self-determination studies have focused on the impact of self-determination skills on transition outcomes and especially for students with LD (Cobb et al.). Instead, a majority of the studies focus on using self-determination skills to improve academic achievement and/or focus on students with more moderate to severe disabilities.

Chambers et al. (2007) summed up the current literature base on self-determination studies for students with learning disabilities by stating that, “the intervention efficacy literature base is weak, at least with its efficacy on global self-determination outcomes.” (p.4). Thus, with relatively little information available on the influence of self-determination skills on the transition process for students with learning disabilities, practical and effective methods of instruction for this group of students is relatively unknown. Hence, this study adds to three areas of critical gaps in the research, SDS, LD and VLE.

Implications for Future Teacher Preparation

The emergence of the global economy has had a tremendous impact on the set of academic and interpersonal skills students must master (Fagella-Luby & Deschler, 2008). For
students with learning disabilities, now more than ever, the need for sufficient academic and social preparation is essential to achieve success and fulfill their role in the new global workplace. The skills that employees of the global workplace will need go beyond the typical content areas, such as mathematics, reading, and science (Oblinger & Oblinger, 2005). Tomorrow’s worker will need to be creative, innovative problem solvers who are also entrepreneurial, competitive, and cooperative (Prensky, 2004, 2005, 2008; Simpson, 2005). For teachers, these changes have had and will continue to have a tremendous impact on the roles, especially their role in providing effect transition guidance to students with learning disabilities. While this study focused on using a VLE to teach middle school students with learning disabilities about self-determination skills, the concept of the study could also be used to teach pre-service educators of the importance of transition planning, self-determination skills, and infusing technology into research-based practices to meet the digital native students’ educational needs.

Self-Determination Skills

Teachers most commonly report feeling unprepared to teach transition and self-determination skills to their students with disabilities (Carter et al., 2008; Wehmeyer et al., 2000). Teachers’ feelings were substantiated by a report from the Division of Career Development and Transition (DCDT) in 2003. The findings from almost 600 chairpersons and instructors at colleges and universities across the country revealed that the topic of transition is most often integrated into course curriculum. Less than 44% of the faculty members reported
devoting an entire course to transition, or to integrating the transition competencies into more than one course in their programs. The university chairpersons and instructors ranked the transition domains that include self-determination competencies relatively low (Anderson et al., 2003). By disregarding the importance of these skills, college and university faculty members fail to convey the importance of transition and self-determination skills to their teacher candidates. Unfortunately, for students with disabilities, their special education teachers’ insufficient understanding of transition and self-determination skills serves as an additional barrier to post school success.

The second issue researchers found regarding the inadequate preparation of special education teachers’ is related to the misconceptions regarding the impact of self-determination skills. Although familiarity and belief in the efficacy of self-determination skills was fairly common among special education teachers, the occurrence of self-determination skills instruction and promotion was unknown (Hughes et al., 1997; Wehmeyer et al., 2000). Studies that have examined the inclusion of self-determination skills on IEPs and ITPs revealed very little correlation between teachers’ beliefs in the efficacy of self-determination and the inclusion of self-determination skills on IEP/ITPs. Wehmeyer and Schwartz (1998) reported that no self-determination goals were found in any of the more than 800 IEP/ITPs they reviewed. The results of Wehmeyer et al’s (2000) study indicated that 22% of the 1219 special education teachers and service providers included self-determination skill goals in all of the IEPs. Almost one-third of the group reported that none of their IEPs included self-determination goals. Sadly almost 400 special educators indicated that they did not involve their students at all in the students
educational planning. Overall, the results of these and other studies regarding the promotion of self-determination skills indicated that teachers’ knowledge of self-determination skills is superficial (Wehmeyer et al.).

An additional explanation for teachers’ underutilization of self-determination skills relates to the biases of their students’ abilities. Teachers of students with more severe intellectual and cognitive disabilities indicated that they were less likely to teach the cognitive strategies associated with self-determination skills than teachers of students with mild disabilities (Wehmeyer et al., 2000; Wehmeyer, 2004). Teachers of students with more severe cognitive disabilities indicated that they did not teach self-determination skills, because they felt that their students would not benefit from the instruction. This evidence also indicates that teacher preparation programs need to focus on preparing educators who understand and are committed to teaching self-determination skills to all students with disabilities regardless of the category or severity of the disability.

Wehmeyer et al. (2004) also provide guidance regarding developing effective educational systems that do not add transition and self-determination skills instruction to teachers who are having difficulty teaching core content areas with success. They suggest infusing self-determination skills and transition skills into the existing curriculum and to incorporate the use of emerging instructional trends. Wehmeyer et al. (2000) also suggest teaching pre-service educators to use instructional technology to enhance the practice of self-determination skills. The authors argue that these tools will empower future teachers to teach the components of self-determination and self-regulated learning that will support their ability to integrate problem
solving, goal setting and decision making into the curriculum and increase the pre-service educators’ confidence in their own ability to teach transition skills and self-determination skills.

Virtual Learning Environments

Our nation is at an educational crossroads. The results reported in the Nation’s Report Card regarding students’ academic achievement across the country reveal the effects of an outdated educational system that is slow to change (Grigg, Lauko, & Brockway, 2006; Lee, Grigg, & Dion, 2007a; Lee Grigg, & Dion, 2007b). Poor academic success, high numbers of high school dropouts, and a generation of students who have been labeled lazy or apathetic about their education plague the national education scene. Prensky (2001, 2002, 2004, 2005), Gee (2003), Jukes and McCain (2008), contend that the poor academic success of today’s students should not be attributed to laziness or apathy toward their education. Instead, researchers suggest that the way these students think, interpret, process information, and perform a range of tasks, is neurologically different from any other generation. As such, these students learn differently and require changes to traditional teaching formats. Unfortunately, teaching methods and educational systems have been slow to adapt to the changes in the student body. In fact, Jukes and McCain (2008) found “almost none of what we have learned about how the brain functions is being applied to help understand today’s learners and their learning and communication preferences.” (p.14).

Teacher preparation programs must take into consideration the changing needs of both school-aged children and their teacher candidates, by providing opportunities to practice the
integration of technology into a variety of experiences. Technologically literate teachers are more likely to use multiple avenues to reach and enhance the learning experience for digital natives with LD (Gomez, Sherin, Griesdom, & Finn, 2008).

The Future of UCanFnsh

The process of teaching SDS to middle school students with LD will continue in UCanFnsh for the life of the grant. In the original grant proposal, plans were included to begin teaching vocational skills infused with SDS to high school students with LD during the second year or phase. The high school students will allow the researchers to use different aspects of UCanFnsh, which may not have been appropriate for middle school students with LD. Preparation for the inclusion of high school students with LD, including modifying a vocational skills curriculum, and creating or adapting the buildings and classrooms on campus are expected to begin this fall. Further, participants will learn how to apply for and practice requesting testing accommodations on standardized tests such as the Scholastic Aptitude Achievement Test (SAT) and the American College Testing Program (ACT). Additional goals to increase student use of SDS to request accommodations and display self-advocacy include linking the online library provided by Bookshare to the library in UCanFnsh.

This project was the first attempt to create an environment where researchers could combine essential skills, such as SDS, and use technological tools that appeal the Digital Natives to help prepare them for the next phase of their lives. The researcher will continue to collaborate with faculty and staff at the University of Central Florida to refine the first phase and assist with
the evolution of phase two. To do this, lessons learned from the first phase of this project, including the design of the study, the curriculum used, and the delivery of instruction will be reviewed and refined to meet the needs of the next group of participants. Three aspects of the study will be refined: (a) recruitment of the next group of individuals will take place earlier in the school year to allow for a larger study population, (b) a condensed version of the five SDS modules will be created, and (c) sample size and power will be calculated prior to study commencement to address the impact that learning in the VLE has on gender, socio-economic status and grade level.

Conclusions

The transition process is often poorly aligned and even traumatic for students with learning disabilities and characterized by poor post-school outcomes. Slightly more than 17% of students with disabilities are unemployed, underemployed, or have had not had any type of job training (including vocational or post secondary) two years after high school graduation (Wagner, 2005; Wagner et al., 2005). Young adults with LD are also more likely to be involved in the criminal justice system. Despite knowledge of self-determination skills and the learning needs of typical digital natives, many students with disabilities report having limited or no input in plans about their future, and continue to have difficulty seeing the relevancy school has on their lives (Carter et al., 2008). This study examined the impact of using virtual learning environments to teach middle school students with LD, multi-component self-determination skills adapted curriculum.
There is a necessity to tailor education to meet the needs of digital learners’, and it would be wrong to assume that all digital natives are fluent in technology. It would also be an incorrect assumption on the academic community’s part to assume that because this generation has instant access to information, they are interested in learning all that they can about whatever they need or want. In reality, the access to information has not changed this generations’ overall drive or desire to be omniscient. Digital natives learn and know only the things they want to know or need to know (Feirtag & Berge, 2008). Many digital natives blur the lines of public domain, are disinterested in reading, or keeping up-to-date with current events (Feirtag & Berge, 2008; Lorenzo & Dziuban, 2006; Oblinger, 2003). As the adults in the situation, it seems necessary to provide this generation of learners with the qualities of learning that appeal to them while at the same time, instilling in them a desire to learn more than only what they simply need. The challenge lies in creating, or finding the balance between the two, whether that lies in teaching information literacy or information fluency, or both.

In summary, this study sought to determine the influence that learning self-determination skills in a VLE would have on middle school students. Students experienced gains in self-determination knowledge, specifically, in their capacity to understand self-determination skills, and students who learned about SDS in the VLE had higher scores on the SDS Module Quick Checks than participants in the PPT Group. Additionally, focus group participants who experienced learning in the virtual learning environment reported effectively using self-determination skills at home and at school in a variety of situations. This study was the first attempt by the researcher to explore the significance of using VLEs to engage students with LD
in the learning process. The results of this study warrant the continued exploration into using VLEs to teach self-determination skills, as well as other content and social constructs with the potential to impact the educational achievement and successful transitions of students with learning disabilities.
APPENDIX A: AIR SELF-DETERMINATION SCALE
AIR Self-Determination Scale

STUDENT FORM

Student’s Name ___________________ Date __________

School Name ___________________ Your Grade ________

Your Date of Birth __________

Month Day Year

HOW TO FILL OUT THIS FORM

Please answer these questions about how you go about getting what you want or need. This may occur at school, or after school, or it could be related to your friends, your family, or a job or hobby you have.

This is not a Test. There are no right or wrong answers. The questions will help you learn about what you do well and where you may need help.

Goal

You may not be sure what some of the words in the questions mean. For example, the word goal is used a lot. A goal is something you want to get or achieve, either now or next week or in the distant future, like when you are an adult. You can have many different kinds of goals. You could have a goal that has to do with school (like getting a good grade on a test or graduating from high school). You could have a goal of saving money to buy something (a new iPod or new sneakers), or doing better in sports (getting on the basketball team). Each person’s goals are different because each person has different things that they want or need or that they are good at.

Plan

Another word that is used in some of the questions is plan. A plan is the way you decide to meet your goal, or the steps you need to take in order to get what you want or need. Like goals, you can have many different kinds of plans. An example of a plan to meet the goal of getting on the basketball team would be: to get better by shooting more baskets at home after school, to play basketball with friends on the weekend, to listen to the coach when the team practices, and to watch the pros play basketball on TV.

The AIR Self-Determination Scale was developed by the American Institutes for Research (AIR), in collaboration with Teachers College, Columbia University, with funding from the U.S. Department of Education, Office of Special Education Programs (OSEP), under Cooperative Agreement H323I020005
HOW TO MARK YOUR ANSWERS

EXAMPLE QUESTION:
1. check for errors after completing a project.

EXAMPLE ANSWER:
Circle the number of the answer which tells what you are most like:
(Circle ONLY ONE number).

1 Never..........................student never checks for errors.
2 Almost Never...................student almost never checks for errors.
3 Sometimes........................student sometimes checks for errors.
4 Almost Always..................student almost always checks for errors.
5 Always.............................student always checks for errors.

REMEMBER

There are NO right or wrong answers. This will not affect your child's grade. So please think about each question carefully before you circle your answer.
### THINGS I DO

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I know what I need, what I like, and what I'm good at.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>2. I set goals to get what I want or need. I think about what I am</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>good at when I do this.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I figure out how to meet my goals. I make plans and decide what</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>I should do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I begin working on my plans to meet my goals as soon as</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I check how I'm doing when I'm working on my plan. If I need to,</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>I ask others what they think of how I'm doing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. If my plan doesn't work, I try another one to meet my goals.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please go on to the next page ➡️

*ADF Self-Determination Scale: Student Form*
### HOW I FEEL

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel good about what I like, what I want, and what I need to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I believe that I can set goals to get what I want.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I like to make plans to meet my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I like to begin working on my plans right away.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I like to check on how well I'm doing in meeting my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I am willing to try another way if it helps me to meet my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

How I Feel - Total Items 1 + 2

How I Feel - Total Items 3 + 4

How I Feel - Total Items 5 + 6

Please go on to the next page »

---

4. MR Self Determination Scale, Student Form
# WHAT HAPPENS AT SCHOOL

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People at school listen to me when I talk about what I want, what I need, or what I'm good at.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
<tr>
<td>2. People at school let me know that I can set my own goals to get what I want or need.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
<tr>
<td>3. At school, I have learned how to make plans to meet my goals and to feel good about them.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
<tr>
<td>4. People at school encourage me to start working on my plans right away.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
<tr>
<td>5. I have someone at school who can tell me if I am meeting my goals.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
<tr>
<td>6. People at school understand when I have to change my plan to meet my goals. They offer advice and encourage me when I'm doing this.</td>
<td>![ ] 1</td>
<td>![ ] 2</td>
<td>![ ] 3</td>
<td>![ ] 4</td>
<td>![ ] 5</td>
</tr>
</tbody>
</table>

What Happens at School - Total Items 1 + 2: blank

What Happens at School - Total Items 3 + 4: blank

What Happens at School - Total Items 5 + 6: blank

Please go on to the next page ⇒

---

5. AIR Self Determination Scale, Student Form
### WHAT HAPPENS AT HOME

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People at home listen to me when I talk about what I want, what I need, or what I'm good at.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. People at home let me know that I can set my own goals to get what I want or need.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. At home, I have learned how to make plans to meet my goals and to feel good about them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. People at home encourage me to start working on my plans right away.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I have someone at home who can tell me if I am meeting my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. People at home understand when I have to change my plan to meet my goals. They offer advice and encourage me when I'm doing this.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

What Happens at Home - Total Items 3 + 4

Please go on to the next page ⇒

---

6. AIR Self-Determination Scale, Student Form
PLEASE WRITE YOUR ANSWERS TO THE FOLLOWING QUESTIONS...

Give an example of a goal you are working on.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

What are you doing to reach this goal?

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

How well are you doing in reaching this goal?

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

THANK YOU!

7 AR Self Determination Scale: Student Form
The AIR Self-Determination Profile
Student Form

![Diagram of AIR Self-Determination Profile]

Name: ___________________________ Date: ___________________________

8 AIR Self-Determination Scale, Student Form
January 30, 2006

Dear Dr. Martin,

I am pleased that you can make the AIR assessments and User Guide available for download from your OU website. This will provide a valuable service to schools across the country.

You have my permission to place the AIR Educator, Parent, and Student assessment tools on the Zarrow Center website for free downloading. You also have my permission to place the AIR User Guide on your website for free downloading.

Respectfully,

Dennis E. Mithaug, Ph.D.
Professor
APPENDIX B: SELF-DETERMINATION SKILLS MODULES
Module 1
Decision Making

Hi! My name is Ms. R. You will see me pop in every now and then as you learn about self-determination! I hope you enjoy this experience. And if you need anything, raise your hand, we are all here to help!

Module 1: Decision Making
Do you agree with the sentence below?
"If I am going to make more decisions about my future, I need to know the best way to make decisions."

Quotable Quote
"I have made some bad choices, I have made some so-so choices, and I have made some good choices. The most important thing about all of them is that they are MINE – all of them." ~Anne Wilson Schaef

YOU should be involved in your DECISION-MAKING!
• A decision is a process.

• One of the steps in making a decision is making a choice.

• A choice is when you select something you want or prefer.

The Ice Cream Decision
You go to the mall and pass by an ice cream store. Your favorite ice cream is Fudge Brownie, but you know they don’t always have that.
When you look for it, you don’t see any Fudge Brownie ice cream. : ( You think you want something like Fudge Brownie – maybe Rocky Road?
The Ice Cream Decision (continued)

You look at the sign above the counter to see how much a double-scoop in a waffle cone costs.

After checking your money, you figure you can't afford a double-scoop in a cone but could afford a single-scoop in a cone or a double-dip in a cup.

When asked what you want, you order a single-scoop of Pralines and Cream in a waffle cone.

You made some choices when you were getting the ice cream, right?

You checked out which ice cream the store had.

You learned what the price of the double-scoop cone was.

You figured out how much money you had.

What would have happened if...

You chose to order Fudge Brownie even though they didn't have it?

- The person taking your order might have thought you just came in from another planet!

What would have happened if...

You ordered a double-scoop in a waffle cone and couldn't pay for it so you had to ask the person at the counter to put one scoop back?

- The person taking your order might think you are a little strange!

Part of making decisions is choosing things you like and want.

Another part of making decisions is getting all the information you need to make those choices.

Do you know what the last part of making a decision is?

Just do it!

Making a decision means:

1. Getting information
3. Figuring out consequences.
4. Acting on your decision.
Some decisions you may have made today...

- What to wear
- What to have for breakfast
- What kind of music you listened to on your way to campus

DO IT! – A tool for decision making.

D - Define your problem.
O - Outline your problem.
I - Identify the outcome of each option.
T - Take action.
I! - Get excited!!

Ouch! My Stomach!

You wake up one night and your stomach is hurting – REALLY hurting. Once you’re at the hospital, a doctor checks you out and says your appendix is swollen and inflamed. He says, “Do you want to have your appendix taken out?”

“How should I know?” you think. “I don’t even know what one is or does!”

So what do you do?

- Define your problem.
- Outline your options.
- Identify outcomes.
- Take action.
- Get excited.

- Your appendix is swollen and inflamed.
- Your appendix is removed and kept.
- Having your appendix could make you even more sick. Taking your appendix could make you feel better.
- You decide to have your appendix taken out.
- You’re looking forward to feeling better.

Let’s Review!

1. YOU should always be involved in making decisions that involve you!

2. Decision making is a process that involves making a choice.

3. When you make a decision, you choose things that you want or like.

Let’s Review!

4. Before you make a choice, you should get all of the information you need to make an informed choice.

5. Think about the consequences to your choices before you make a decision.

6. Once you have weighed all of your options, go ahead and act on your decision.
Module 2: Goal Setting

Let's talk about goals?
What's a goal?
A goal is something that you aim for or something that you set out to do.

If you have ever had any goals or have some that you're thinking of right now, check out this module!

Goals can be long-term or short-term.

- Long-term goals...
  - are a long way away.
  - are goals that you will reach a long time from now.
  - Example: Graduating from high school.
  - You won't know if you've reached this goal for a long, long time.
- Short-term goals...
  - are much closer in time.
  - are goals you want to reach in a shorter time.
  - Example: Staying awake through an entire class.
  - You will know if you've reached this goal at the end of the class period.

Objectives – the steps you take to reach your goal.

- Long-term goal: To graduate from high school
- Objectives:
  - Passing each class you take
  - Studying at least 10 hours per week
  - Staying awake in class
- Short-term goal: To stay awake in class
- Objectives:
  - Go to bed early the night before
  - Drink a soda before class
  - Pinch yourself each time you feel like you're starting to fall asleep

Your IEP Document

Do you know where to look for the goals you, your teachers and your parents developed?
That's right...on your IEP! Remember that IEP stands for Individualized Education Program. And it contains information like
1. Your learning strengths
2. Your learning limitations
3. Your school-related goals and
4. Your goals and plans for the future

Goals and objectives lead to OUTCOMES

- Outcomes are what you expect to happen.
- Goals are what you aim to do to make those outcomes a reality.
Goals are like roads! They are how you get from now to the future!

- You may have to cross lakes or rivers, go over mountains or across deserts to get to where you want to go.
- Unless you have a great pair of walking shoes and are a great swimmer and mountain climber, you may need some support to reach the place where you want to go!

The Story of Dan Winchester

- Dan Winchester has a Ph.D. in psychology. He is a psychologist. Dan is also a runner.
- Dan runs a lot so he signed up for a marathon. He set two goals— one was to finish the race and the second was to finish the race in less than 10 hours.
- Dan set his goal at 10 hours because he understands his abilities. You see, Dan has cerebral palsy. He uses many types of supports to do everything he does.

Don't forget!

- Creating goals is important.
- It's also important to create goals that you can reach and that you have some control over achieving.

The Story of Dan (continued)

- Dan uses a wheelchair to race, a computer and mouth stick to write and has many friends who help him with things like changing his clothes or preparing a meal.
- As Dan was nearing the finish line for the first marathon he was in, he was discouraged because he had already taken 10 hours. BUT— he didn't give up and quit.
- He finished the marathon in 11 hours and 20 minutes. He reached his goal of finishing the marathon!

The Moral of Dan's Story

- Setting goals is important because it gives you something to work for.
- If you don't reach all of your goals the first time, it's okay. You can take another look at your goals and try again. Or you can rework your goals to try something different.
- What's most important is that you create goals for yourself and figure out the steps (or objectives) to meet them.
Module 3
Supports, Services, and Self-Knowledge

You are doing GREAT!!
Now we are going to talk about...YOU! Because, it's your future, isn't it?
Let's find out about Self-knowledge, Supports, and Services.
Follow me! I'm about to talk to you about how to really get to know yourself and the all-important supports you need!

Ever been told you have a disability?
- A lot of young people who have been told they have a disability have felt frustrated, angry, or embarrassed.
- Sometimes they may say they don't think they have a disability. It's hard for them to think about it, because they think it means they are not smart or that they are weird or different from their friends.
- Sometimes people are afraid of other people's beliefs or stereotypes about people with disabilities.

Beliefs and Stereotypes
A belief is what someone thinks
Example: Columbus thought the Earth was flat and that he would sail right off the end of it if he went too far.

Beliefs and Stereotypes
A stereotype is a belief about a group of people.
Example: All tall people must be great at basketball
**Do you know any MULES?**

**Mules (noun)**
1. A hybrid offspring of a male donkey and female horse.
2. A very stubborn person.

No, no, no! That's not what I mean! I want YOU to be a MULE!

---

**What is a disability?**

- **YOU are not a disability.**
- **YOU are a person with abilities and interests.**
- Having a disability just means that you need to find the supports that let you learn your best.

According to the dictionary, a disability is a substantial limitation in a major life activity.

---

**Let’s talk about supports.** There are a lot of things that need something else to be their best. They need support!

<table>
<thead>
<tr>
<th>All right</th>
<th>Get well</th>
</tr>
</thead>
<tbody>
<tr>
<td>hammer</td>
<td>nail</td>
</tr>
<tr>
<td>cow</td>
<td>soap</td>
</tr>
<tr>
<td>sheep</td>
<td>medicine</td>
</tr>
<tr>
<td>camera</td>
<td>men</td>
</tr>
<tr>
<td>fork</td>
<td>key</td>
</tr>
<tr>
<td>sausage</td>
<td>cheese</td>
</tr>
<tr>
<td>salt</td>
<td>pepper</td>
</tr>
</tbody>
</table>

---

**We all depend on a lot of people and things to get us through every day life.**

- **TV and the Remote Control**
  - Of course you can use a TV without a remote control, but who wants to? And can you imagine a day today without the TV? I don't think so!

- **From Cow to Plate**
  - We depend on the rancher to raise the cow, the butcher to grind the meat from the cow, the supplier to get the meat to the restaurant, the manager to pay for the meat, and the cook to cook the meal just so you can eat a hamburger at a restaurant!
Module 4
Self-Advocacy and Independence

Self-Advocacy and Independence

There are a lot of steps that have to happen before you really communicate with someone, right?

✓ Like what you say, how you say it, how you use your body language, and even how you listen affect communication!

✓ If you've ever had trouble communicating with someone check out this module!

Body Language

Body Language

- Did you know that between 50 and 90% of communication is non-verbal?
- What does that mean for you?
- If you want to communicate, you have to learn to read the signs...

Body Language

Here's an example...

- Let's say you fell asleep in math class.
- How can you tell if your teacher was really upset with you?
- That's right! Through her body language!

What were the signs?
- Where were her arms?
- Were they crossed in front of her? Were they on her hips?
- What about her facial expression?
- Was her face red?
- Was she frowning?

Assertiveness – NOT AGGRESSION

- Think about the boy who had the neighbor’s cat backed into a corner. He teased it by squirting water on it from some squirt gun. Cats hate water! The boy is being AGGRESSIVE by attacking the cat and teasing it.

Assertiveness – To stand up for yourself, to be confident, and to make sure your opinions are listened to.

- Keep your voice calm. Don’t yell or holler or scream. If you have something to say, speak up but don’t shout out!

- Wait for your turn to speak. Don’t interrupt other people, it only makes them mad.

- Don’t fight dirty! For example, don’t tell someone that their hair looks like they were electrocuted just because you disagree with them about something else!
Advocate = Speak up!

- When you advocate for yourself, you speak up for yourself and stand up for things that are important to you.

Three Keys to Self-Advocacy
- Know what you want.
- Know what other people want.
- Know how to communicate why it is important to do/get/try what you want.

Independence

- Do you ever wonder about going to college? Living on your own? Meeting new people and seeing new places?

- Independent people know themselves and the strengths and limitations they have to create the life they want.

- Independent people know how to advocate for their needs.

Self-Advocacy and Independence

Let's review what we learned about self-advocacy and independence.

Body language helps you communicate.

When you are able to communicate properly, you can advocate for the things (like supports and services) that you want and need.

Self-Advocacy and Independence

The ability to self-advocate will help in all aspects of your life.

Here's an example: Did you know that your ability to self-advocate and be independent can influence where you live, where you work, and who your friends are.

They also help you reach your GOALS!!!
Module 5
Putting it All Together:
Using your skills to be successful in postsecondary schools

Take a minute to think of a few things you want to learn after high school....
✓ Do you want to learn how to...
  ✓ draw?
  ✓ take care of animals?
  ✓ speak another language?

Well... guess what?
You can learn how to do all of those things when you go to college!

✓ There are some really cool things about college, like you get to choose your own schedule!
  ✓ Yep, you heard me right!
  ✓ YOU get to choose the days and times you go to school.

College sounds great, doesn't it?
In college, you have a lot more FREEDOM & CHOICES (decisions!)
But, along with freedom and choices, you also have...RESPONSIBILITIES!!!

Well, like...
In high school, you receive support and services through a law called the Individuals with Disabilities Education Act, or IDEA
Responsibilities? Like what?
In college, there are two laws that protect you--they are called the Americans with Disabilities Act (the ADA) and the Rehabilitation Act of 1973
  • BUT (and it's a big one!)
In college, if you want to receive services, YOU MUST REQUEST THEM!!!
Did you hear that? I said YOU MUST REQUEST THEM. You, the college student, did your mom or your dad or your grandpa. YOU must show proof of your disability to the appropriate people! You must figure out who those people are! YOU must ask for support!

Well, in elementary or middle or high school, or whenever you started to receive special education services, that law that we just talked about, IDEA, required your school district to find you and provide support for you to learn. But, in college, they don't have to find you! In fact, if you don't tell them, they won't know! So, really, why is this important?

Check out this chart, it shows you some of the differences between high school and college:

<table>
<thead>
<tr>
<th>High School</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students must meet with a special educator Students must meet with a counselor</td>
<td></td>
</tr>
<tr>
<td>Students must receive accommodations via the special education teacher Accommodations are provided in addition to support services</td>
<td></td>
</tr>
<tr>
<td>Students must be placed in a program that meets their needs Accommodations are available as part of the usual type of service offered</td>
<td></td>
</tr>
<tr>
<td>Students must complete paperwork to receive services Accommodations are only provided if the services are similar to those provided in high school</td>
<td></td>
</tr>
</tbody>
</table>

I'll tell you why...
You receive supports and services that help you learn. When you learn, you get good grades, right? Well, in college, YOU have to ask for supports and services. So, if you know that you need support, but YOU don't ask for it, are you going to learn all that you could?

ADA
The American with Disabilities Act
People who have a disability have the same rights as everyone else. The person with the disability has to know about and be able to talk about their strengths and limitations.
You can do it!

ADVOCATE for yourself-tell people what you need to be successful

KNOW YOUR RIGHTS and

RESPONSIBILITIES-know when, where and how to get the support you need

MAKE GOOD DECISIONS

SET GOALS FOR YOURSELF-choose goals that are important to you

KNOW YOURSELF-know your strengths and weaknesses and how to compensate for areas of weakness

You Have Completed Module 5
The Last One!

Click the monitor and take the survey!
Good luck!
From: "Wehmeyer, Michael L" <wehmeyer@ku.edu>
Date: Thu, 17 Jan 2008 07:13:59 -0600
To: "Martin, James E." <jemartin@ou.edu>
Conversation: A couple things
Subject: RE: A couple things

The Zarrow Center has been granted permission by the copyright holder (Michael Wehmeyer) of Whose Future is it Anyway? to post the curriculum online. Users may download and use the Whose Future is it Anyway? curriculum without further permission and may modify the materials for their personal use as one would modify other instructional materials. Users may not redistribute the curriculum in its current form or in any modified form without additional permission from the copyright holder.

Michael L. Wehmeyer, Ph.D. 819-1378
Professor, Department of Special Education
Director, Wisconsin Center for Developmental Disabilities
School of Education, University of Wisconsin

James E. Martin, Ph.D. 405-2204
Director, Research Center

jemartin@ou.edu 818-540-7068
jtmartin@ku.edu 818-540-4464
mailto:wehmeyer@ku.edu
APPENDIX C: TREATMENT FIDELITY CHECKLISTS
## AW Group Fidelity Checklist

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed? Yes or No</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Explanation of activities/General Q &amp; A</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Review Student Assent form and collect</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Preview the <em>AIR Self-Determination Skills Scale</em></td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Distribute instruction sheet</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Review procedures for logging into AW</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Distribute headphones</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Record general questions</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Direct to post <em>AIR Self-Determination Scale</em></td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Exit Testing Area/Return headphones/turn computers off</td>
<td>Yes No</td>
<td></td>
</tr>
</tbody>
</table>
## Control Group Fidelity Checklist

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed? Yes</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Explanation of activities/General Q &amp; A</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Review Student Assent form and collect</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Preview the <em>AIR Self-Determination Skills Scale</em></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Distribute instruction sheet</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Record general questions</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Direct to post <em>AIR Self-Determination Scale</em></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Exit Testing Area/Turn computers off</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
## PPT Group Fidelity Checklist

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed?</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Explanation of activities/General Q &amp; A</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Review Student Assent form and collect</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Preview the <em>AIR Self-Determination Skills Scale</em></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Distribute instruction sheet</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Review Directions</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Distribute headphones</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Record questions</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Direct to post <em>AIR Self-Determination Scale</em></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Exit Testing Area/Return headphones/turn computers off</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
APPENDIX D: SELF-DETERMINATION SKILLS BEHAVIOR RUBRIC
Self-Determination Skills Rubric

Skill/Corresponding Task | Completed?
---|---
1. Application Process | 
A. Participants will show **self-knowledge** by completing the UCanFns College application for admission completely. 
B. Participants are able to identify and list **accommodations and/or supports** he or she currently uses and expects to use in college on the UCanFns College application for admission.

2. Complete Self-Identification Form | 
A. Participants are able to demonstrate self-knowledge by identifying academic strengths and weaknesses on the Self-Identification Form. 
B. Participants are able to demonstrate knowledge of ADA and Section 504 by choosing to self-identify as a student with a disability.

3. Choose a Career | 
A. Participants are able to demonstrate self-knowledge by selecting a course of study that he or she would like to pursue. 
B. Participants are able to demonstrate decision-making skills by choosing a course of study that aligns with their interests and goals for the future. 
C. By identifying a career of interest, participants are able to demonstrate goal setting.

4. Register for Classes | 
A. Participants demonstrate decision-making skills by selecting courses from a short course listing. 
B. Participants display autonomy by selecting courses that are of interest. 
C. Participants display self-knowledge by selecting courses that are of interest.
5. **Choose to self-identify to their instructors**

   A. Participants are able to demonstrate knowledge of ADA and Section 504 by choosing to self-identify as a student with a disability.

   B. Students display self-knowledge by identifying appropriate accommodations to their instructor.

**Total Points Earned**
APPENDIX E: FOCUS GROUP QUESTIONS
Focus Group Questions-Group A

1. What did you like best about this experience? What did you like least?

2. Before you participated in this project, did you know what self-determination skills were? Did you ever use them? If you did, which ones?

3. Do you think you learned a lot about self-determination skills? Do you think that you learned more about self-determination skills because you learned about them in a virtual world, or do you think that you didn’t learn as much as you could have because of being in a virtual world? Can you give me an example?

4. Do you think you have used more self-determination skills now that you participated in this project? Or, do you think participating in this project hasn’t affected how often you use self-determination?

5. Have you ever used virtual environments before this project? If you have, what did you do there? If you haven’t, did you ever hear of them? Did you know what they were?
Focus Group Questions—Group B

1. What did you like best out of this experience? What did you like least?

2. After you took the first two tests, what did you think self-determination was?

3. Do you have a better understanding of self-determination now?

4. Have you ever used any of the skills the two questionnaires talked about before? If you have, where did you use them? Who did you use them with?

5. Do you think self-determination skills could help you in life? If yes, how? If now, why not?

6. Do you think you would like to learn about self-determination skills? Why? Or why not?
APPENDIX F: GREENHAT DESIGN GUIDELINES
<table>
<thead>
<tr>
<th>Guideline</th>
<th>Implementation</th>
<th>Initial &amp; Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions: Given one at a time, easy to remember, and given in progression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Device: Only one button-only use left click feature on the mouse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction-free Environment: Limit interruptions and suspend activity when instructions are given</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit use of complicated input devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide prompts in the correct order or procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use pictures or symbols, combine with voice-over whenever possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consult speech therapists for symbol suggestion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use standardized and consistent symbols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep the VLE realistic and include barriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>found in the natural environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use input devices that allow for the most accessibility for people with disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widen doorways and entryways, allow for fewer accessibility problems throughout the VLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design a non-immersive VLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create dialogue boxes that remain on screen as necessary based on learner’s needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design a clickable area that is larger than the object</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure visibility of all objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design activities that require limited clicks from the input device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widen or increase the space in the viewers line of vision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Match learning objectives with user ability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use authentic designs that replicate natural setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reward proper money handling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX G: UNIVERSITY OF CENTRAL FLORIDA INSTITUTIONAL REVIEW

BOARD APPROVAL
Notice of Expedited Initial Review and Approval

From: UCF Institutional Review Board  
FWA0000351, Exp. 10/8/11, IRB00001138

To: Kara A. Rosenblatt and Co-PIs: Lee S. Cross, Lisa Dicker

Date: March 13, 2009

IRB Number: SBE-09-06079

Study Title: Investigation of the impact of virtual learning instruction on the acquisition and practice of self-determination skills in middle school students with learning disabilities

Dear Researcher,

Your research protocol noted above was approved by expedited review by the UCF IRB Chair on 3/12/2009. The expiration date is 3/11/2010. Your study was determined to be minimal risk for human subjects and expeditable per federal regulations, 45 CFR 46.110. The categories for which this study qualifies as expeditable research are as follows:

6. Collection of data from voice, video, digital, or image recordings made for research purposes.
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB has approved a consent procedure which requires participants to sign consent forms. Use of the approved, stamped consent document(s) is required. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Subjects or their representatives must receive a copy of the consent form(s).

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2–4 weeks prior to the expiration date. Advise the IRB if you receive a subpoena for the release of this information, or if a breach of confidentiality occurs. Also report any unanticipated problems or serious adverse events (within 5 working days). Do not make changes to the protocol methodology or consent form before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form can be used to extend the approval period of a study. All forms may be completed and submitted online at http://irbresearch.ucf.edu.

Failure to provide a continuing review report could lead to study suspension, a loss of funding and/or public funding possibilities, or reporting of noncompliance to sponsors or funding agencies. The IRB maintains the authority under 45 CFR 46.110(c) to observe or have a third party observe the consent process and the research.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/13/2009 03:22:16 PM EST

IRB Coordinator
APPENDIX H: ORANGE COUNTY PUBLIC SCHOOLS RESEARCH REQUEST

APPROVAL
Submit this form and a copy of your proposal to:
Accountability, Research, and Assessment
P.O. Box 271
Orlando, FL 32802-0271

Orange County Public Schools

RESEARCH REQUEST FORM

Your research proposal should include:
- Project Title
- Purpose and Research Problem
- Instruments
- Procedures and Proposed Data Analysis

Requester's Name: Kara Rosenblatt
Date: February 11, 2009
Phone: (813) 200-2885

Address: 2711 Rainbow Springs Lane, Orlando, FL 32828
City, State, Zip:

Institutional Affiliation: University of Central Florida

Project Director or Advisor: Dr. Lee Cross and Dr. Lisa Peter
Phone: (407) 923-5477

Address: Child, Family and Community Sciences, 4000 Central Florida Blvd., Orlando, FL 32816

Degree Sought: ☐ Associate ☐ Bachelor's ☐ Master's ☐ Doctorate ☐ Not Applicable
☐ Specialist

Project Title: Investigation of the impact of virtual learning instruction on the acquisition and practice of self-determination skills in middle school students with learning disabilities

---

<table>
<thead>
<tr>
<th>PERSONNEL/CENTERS</th>
<th>NUMBER</th>
<th>AMOUNT OF TIME (DAYS, HOURS, ETC.)</th>
<th>SPECIFY/DESCRIBE GRADES, SCHOOLS, SPECIAL NEEDS, ETC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>250</td>
<td>0 days, 5 hours</td>
<td>6-8th grade students with one disability, learning disabilities</td>
</tr>
<tr>
<td>Teachers</td>
<td>10</td>
<td>6 hours</td>
<td>Middle school LD teachers who teach students that will participate in the study</td>
</tr>
<tr>
<td>Administrators</td>
<td>2</td>
<td>3</td>
<td>Agree to participate in research</td>
</tr>
<tr>
<td>Schools/Centers</td>
<td>2</td>
<td>less than one day</td>
<td>8-8 grade students with LD, Avalon Park Middle School, and Corner Lakes Middle School</td>
</tr>
<tr>
<td>Others (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify possible benefits to students/school system: Research shows that students with learning disabilities who are self-determined have more academic success and are more likely to graduate from high school. Additionally, research also indicates that the use of technology engages learners 21st century learners and that skills taught in the virtual environment have successfully transferred to the real world setting.

---

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature: [Signature]

RECEIVED FEB 18 2009

Approval Granted: ☐ Yes ☐ No Date: 2-27-2009

Signature of the Senior Director for Accountability, Research, and Assessment: [Signature]
Instructions to log into UCanFnsh

Hi there! Remember, you can use the sheet you and your parents filled out to help you with any of this.

First, open (double-click) the shortcut to Activeworlds that is on your desktop.

You will be asked if you would like to enter the universe as a citizen or a guest. Choose guest, enter your name (first name) and your email address. If you don’t have an email address, or if you can’t remember it, raise your hand. An adult will give you an email address to use.

Once you have entered your email address, you will be in the main entrance of the AW Education Universe. The page will look like the one below.

There are two ways to teleport to UCanFnsh.
The first one is to click on the tab on the left hand side of this screen to see the list of worlds. The button says “TabsF9” and has a folder icon. Find UCanFnsh from the list of worlds and double click on the name.

The second way is to go to the toolbar on the top of the screen and find the word teleport. Teleport should be right next to file. Click on the word teleport and the choose the third option down that says “To…” A box pops up that has two spaces, one for the name of the world, and one for the coordinates. You only need to put in the name of the world, UCanFnsh, you don’t need the coordinates. Click OK.

You will be transported into UCanFnsh.

Look to the right of the clock, do you see the sign for Jennings Hall? Walk over to the sign and double click on it.
This is the lobby of Jennings Hall. A few of the activities you are going to do will happen right here in this building. So head upstairs, to the second floor and turn to the right. Find the room that says classroom and go ahead in.

Choose a station. This is where you will watch and listen to self-determination. After you finish each module, click on the Pegasus and it will take you to a short quick check. If you click on the Pegasus again after your done with the quick check, you’ll be teleported right back here.

Put on your headphones, and you’re ready to begin!

Remember, to answer the questions after the modules, click on the Pegasus. To get back to the modules, click on the Pegasus again.

After you are done with the modules, your first task is to go downstairs to the Student Resource Center and apply to UCanFnsh.

If something happens, and you get booted off, or you get lost, raise your hand and someone will come by to help! Please read all of the instructions.

Here is a list of your activities—don’t use this as a roadmap..it’s only an outline so you can keep track of where you are. If you read all of your directions, you won’t get lost!

Activity 1: Apply to UCanFnsh
Activity 2: Register with the SDRC
Activity 3: Pick a career
Activity 4: Register for courses
Activity 5: Email your professors
*once you have completed the 5th activity, you will be directed to take the AIR Self-Determination Scale again. You do not have to log out of UCanFnsh. *
APPENDIX J: SELF-DETERMINATION SKILLS CHECK UP QUESTIONS
### Module Comprehension Checks

#### Module 1

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1.** | When my parents and my teachers make decisions about my future, I should always be involved in the discussion. | a. Yes  
b. No |
| **2.** | Decisions involve making | a. Goals  
b. Choices  
c. Consequences |
| **3.** | Consequences are | a. Problems  
b. Actions  
c. Outcomes |

#### Module 2

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1.** | Goals can be broken down into steps or | a. Objectives  
b. Limitations  
c. Decisions |
| **2.** | Goals can be thought of as | a. Roads  
b. Lakes  
c. Mountains |
| **3.** | You should always set goals that you can | a. Achieve  
b. Overcome  
c. Solve |

#### Module 3

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1.** | An example of a support is | a. Doing my homework all by myself.  
b. Studying for a test. |
2. A Mule is someone who
   a. Knows what helps them learn.
   b. Is stubborn.
   c. Knows how to take action.

3. When I know how I learn best and the types of support I need, I can achieve my goals.
   a. True
   b. False

### Module 4

1. Good communication involves
   a. Eye contact
   b. Ignoring someone
   c. Interrupting people

2. When you stand up for yourself and make sure your opinions are heard, you are being
   a. Nosey
   b. Stubborn
   c. Assertive

3. When you know what you want, and use the proper ways to communicate your wants, you are
   a. Whining
   b. Advocating
   c. Planning

### Module 5

1. In college, who asks for supports in services for you?
   a. You
   b. Your parents
   c. Your professors

2. In college, do you have to tell your professors you
   a. Yes
   b. No
<table>
<thead>
<tr>
<th>have a disability?</th>
</tr>
</thead>
</table>
| 3. Are you protected under different laws in college than you were in high school? | a. Yes  
b. No |
## Volunteer Notes

<table>
<thead>
<tr>
<th>Today’s Date:</th>
<th><strong>Group:</strong> AW NI PPT</th>
<th><strong>Volunteer’s Initials</strong></th>
</tr>
</thead>
</table>

**Student 1**

- Did anything unusual happen? (i.e. fire alarm, technology technicalities) If so please explain

- **Begin:**
- **End:**

**Student 2**

- **Begin:**
- **End:**

**Student 3**

- **Begin:**
- **End:**

- **Were any unusual questions asked? Or any questions that you were not able to answer?**

**Student 4**

- **Begin:**
- **End:**
<table>
<thead>
<tr>
<th>Student 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin</td>
</tr>
<tr>
<td>---------</td>
</tr>
</tbody>
</table>
APPENDIX L: UCANFNSH COLLEGE APPLICATION
Application for Admission to UCanFnsh

INSTRUCTIONS: PLEASE COMPLETE ALL SECTIONS OF THIS APPLICATION TO BE CONSIDERED FOR ADMISSION.

Section I.
Please indicate the year and term you would like to begin UCanFnsh

20 _____ Fall Spring Summer

Fill in your last name:___________________________________________

Fill in your first name and middle name: __________________________________

Please check the box that best answers the questions:

Are you employed?

Yes, I work full-time (30 or more hours per week)

Yes, I work part-time (1-29 hours per week)

No, I am unemployed

Are you a U.S. Citizen?

Yes

No
Please fill in your complete address below.

What is your telephone number?

Please give UCanFnsh your email address.

Section II. Student Goals

What are your educational goals while you are studying at UCanFnsh?

<table>
<thead>
<tr>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earn an Associate’s Degree</td>
</tr>
<tr>
<td>Earn a Bachelor’s Degree</td>
</tr>
<tr>
<td>Earn a vocational certificate</td>
</tr>
<tr>
<td>None of the above</td>
</tr>
</tbody>
</table>

Do you plan to transfer to another college?

<p>| Yes, to another 4-year school after graduation |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| Do you plan to transfer to another school before graduation?   | Yes, to another 4-year school before graduation  
No, I do not plan to transfer |
| Do you plan to transfer to a 2-year school before graduation? | Yes, to a 2-year school before graduation |
| Are you planning to be a student at UCanFnsh?                  | 1 semester            
1 year               
1-2 years            
2-4 years |
| What do you think you will major in?                           |                                |
| Tuition Classification:                                       | Are you a Florida resident?  
How long have you lived in Florida? |

I hereby certify that, to the best of my knowledge, the information above is true and complete. I understand that any misrepresentation of information is cause for dismissal from UCanFnsh.
(Student signature)  (Date)
APPENDIX M: UCANFNSH LETTER OF ACCEPTANCE
Dear UCanFnsh student,

Congratulations on your admission to UCanFnsh, class of 2009. It gives me great pleasure to send you this letter of acceptance, and you should feel proud of the work that led you to this moment. We look forward to your contributions to UCanFnsh and know that your strength and character will add to our remarkable community.

If you have any general or specific questions about UCanFnsh, feel free to email us at krosenbl@mail.ucf.edu. Welcome to UCanFnsh!

Best wishes,

Kara Rosenblatt
Undergraduate Admission
APPENDIX N: SELF-IDENTIFICATION FORM
Self Identification Form

Please complete the following information.

Contact information:

Name:

Address:

City, State, Zip Code

Home phone:

Cell phone:

Email address:

My learning disability affects: writing, reading, math, writing and reading only, writing and math only, reading and math

Does your disability affect your ability to complete assignments on time? yes or no

Does your disability affect your ability to complete any long-term projects on time? yes or no

Do you do better on tests if you have extra time? yes or no

Do you think your disability affects your grades? yes or no

Do you participate in after school activities? yes or no

If you do, what types of activities do you do? __________________________

Do you use technology to complete assignments or tasks? yes or no
If so, what types of technology do you use? Alpha smart, text to speech, ebooks, word processor

When you take a test or need to concentrate, do you need distraction-free, small group setting, no problems concentrating

Do you need extended time on class work in order to do your best? yes or no

Do you need to take frequent breaks while working, completing assignments or tests? yes or no

Do you use a calculator? yes or no

Do you need a note taker? yes or no

My strongest subject is: math, science, technology, reading, language arts, social studies

My weakest subject is: math, science, technology, reading, language arts, social studies

Do you learn best by______ information? reading, writing, listening, seeing, or I don’t know

I feel comfortable asking for help when I need it yes or no.

Did you know you need to provide proof of your disability in college? yes or no

There are many different assessments that you will need to have to prove you have a disability once you are in college.

Can you name or describe any of the assessments colleges may look for in order to prove you have a disability? yes or no

If so, which one? fill in the blank

Do you know the results of your assessments? yes or no
APPENDIX O: BASIC DEMOGRAPHICS SHEET
Basic Demographic Sheet

Parents, guardians, and participants: Please answer these questions to the best of your ability and bring this sheet with you when you participate.

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>City, State, Zip Code</td>
<td></td>
</tr>
<tr>
<td>Phone number</td>
<td>Home:</td>
</tr>
<tr>
<td></td>
<td>Cell:</td>
</tr>
</tbody>
</table>
## Directions: Please circle Yes or No for each accommodation that you use.

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Do I use this?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutoring</td>
<td>Yes</td>
</tr>
<tr>
<td>Books on tape</td>
<td>Yes</td>
</tr>
<tr>
<td>Note-takers</td>
<td>Yes</td>
</tr>
<tr>
<td>Speech to text</td>
<td>Yes</td>
</tr>
<tr>
<td>Tape recording class lectures</td>
<td>Yes</td>
</tr>
<tr>
<td>Sitting at the front of the class</td>
<td>Yes</td>
</tr>
<tr>
<td>Using the computer to type assignments</td>
<td>Yes</td>
</tr>
<tr>
<td>Extended time on tests</td>
<td>Yes</td>
</tr>
<tr>
<td>Separate location for tests</td>
<td>Yes</td>
</tr>
<tr>
<td>Oral instead of written tests</td>
<td>Yes</td>
</tr>
<tr>
<td>Clarification of questions</td>
<td>Yes</td>
</tr>
<tr>
<td>Use of calculators, dictionaries, spell checkers, laptops, etc. during tests</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Directions: Please complete the following questions regarding how your disability affects your learning.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>My disability is:</td>
<td></td>
</tr>
<tr>
<td>My disability affects my school work:</td>
<td></td>
</tr>
<tr>
<td>Despite my disability, I participate in the following after school activities:</td>
<td></td>
</tr>
<tr>
<td>I learn best when:</td>
<td></td>
</tr>
<tr>
<td>I have trouble learning when:</td>
<td></td>
</tr>
</tbody>
</table>
In order to stay focused, I need:

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>

I have tried the following accommodations, and they did not work for me:

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>
APPENDIX P: CAREER LIST
UCanFnh Job List

Directions: Hopefully you have an idea about the job you want when you are an adult.

Look at the jobs listed below and choose the job that interests you the most. Pay attention to the name of the college that houses your job.

After you choose your job from the list below, you will go to the Building of Seven Colleges and find the college that corresponds with your job.

You may only choose only one career.

Choose the college that is associated with the career you want.

Remember only choose one!


Arts (Actor, Photographer, Musician, Film Producer)

Business (Accountant, Economist, Business Administration, Event Manager)

Education (Special Education Teacher, Science Teacher, Math Teacher, Media Specialist)

Medical Science (Doctor, Nurse, Physical Therapist, Laboratory Scientist)
Science, Technology, Engineering, and Mathematics (Engineers, Computer Programmer, Chemist)

Public Administration (Pre-Law, Social Worker, Sociologist, Law Enforcement)
APPENDIX Q: COURSE REGISTRATION LIST EXAMPLE
Course of Study Selection College of Arts

You have selected to be a student in the College of Arts.

People who graduate with a degree in Arts can be an actor, a photographer, a musician, or a film producer.

UCanFnsh offers a Bachelors degree in Arts. Please choose the Bachelors degree answer option below to show you understand that this is a 4-year program.

(yes or no)

Please choose the occupation you are studying to become.

Actor

Photographer

Musician

Film Producer

Now it is time for you to select your classes. Please select one course from each section below. Pay attention to the days and times of the courses you have chosen so that you do not register for courses that meet in the same days and times!!

233
Follow this key to reference class meeting days and times:

MW=Monday and Wednesday

TR=Tuesday and Thursday

The class meeting days and times are in parenthesis ()

Please select one course from the list below:

ENG 101  English Composition I (MW 8:00 am -9:30 am)

ENG 101  English Composition I (TR 10:00 am-11:30 am)

ENG 102  English Composition II (MW 10:00 am -11:30 am)

SPC 1500  Fundamentals of Communication (MW 1:30pm-3:00pm)

Please select one course from the list below:

MGF 106  Fundamentals of Mathematics (MW 5:00 pm-7:00 pm)

MAC 105  Mathematics (TR 11:00 am-12:30 pm)

MAC 103  College Algebra (TR 8:00 am-9:30 am)

MAC 107  Finite Math (TR 1:30 pm-3:00 pm)

Please select one course from the list below:

ANT 202  The Human Species (TR 8:00 am-9:30 am)

PSC 201  Physical Science (MW 5:00pm-7:30 pm)
AMH 202  U.S. History 1877-present (MW 10:00 am-11:30 am)

PAF 210  Humanities II (TR 10:00 am-11:30 am)

Please select one course from the list below:

ART 101  Design Fundamentals (MW 8:00 am-9:30 am)

ART 171  Art and Film History (TR 1:00 pm-3:00 pm)

PHT 141  Photography (TR 3:30 pm-5:00 pm)

GRD 210  Graphic Design (MW 11:30 am-12:30 pm)

AHR 150  Survey of European Art (MW 5:00 pm-7:00 pm)

Thank you for registering for your first semester at UCAnFush. Your class list will be emailed to you the week before classes start.

If you would like to send an email to your professors introducing yourself and explaining your disability, please copy this link and paste it in a new window:

http://www.zoomerang.com/Survey/?p=WEB228YTUZS47X
APPENDIX R: SELF-IDENTIFICATION EMAIL
Dear Instructor:

Please be aware that I am registered at the Student Disability Resource Center as a student with the following disability (insert disability). The following accommodations have been successful for me in the past: tutoring, taped text, note-takers, text readers, tape recording lectures, sitting in the front of the class, typing notes instead of writing them, extended time on tests, clarification of assignments or test items, use of calculators, oral instead of written tests, use of dictionaries, spell checkers during tests if spelling counts, frequent testing, alternate test format, and alternate ways to show mastery of content). I know that I will be a successful college student and benefit from the accommodations above to help me reach my goals. If I have any concerns or am having difficulty with a particular assignment, I will contact you to discuss my options.

If you need to reach me, my email address is ____________________________ and my phone number is ____________________________.

Thank you,

Student Name
APPENDIX S: POWERPOINT GROUP INSTRUCTIONS
Introduce yourself

Volunteer: Thank you for agreeing to participate in this project. We hope you learn a lot and enjoy yourself.

Please sit in front of one of the computers. Open the window that says, “AIR Self-Determination Scale.” It should be the first tab on the bottom of your screen. This is called the AIR Self-Determination Scale. The purpose of this tool is to find out how you learn about what you do well and where you may need help. This is not a test. There are no right or wrong answers. The questions will help you learn about what you do well and where you may need help.

While you are here today, you will learn about self-determination skills and have the opportunity to practice applying them as if you were getting ready to go to college for the first time. The first activity you will do is called the AIR Self-Determination Scale. Once you have finished the AIR Self-Determination Scale, please minimize the window and open the self-determination modules window on the bottom of your screen. There are 5 modules on self-determination. All 5 modules have text and speech, so please use your headphones while listening to the modules. Please begin watching Module 1, Decision Making. After each module, a brief check-up section asks you 3 questions about the information you just learned. You must take each check-up in order to proceed to the next module.
After you have finished the last check up section for Module 5, you will click the text that says, “Are you ready to be your own advocate? Practice your self-determination and self-advocacy skills with us for a bit.” This will take you right into your first activity, where you apply to a college called UCanFnsh.

You will complete 5 activities, beginning with the application to UCanFnsh. The next 3 activities that you will complete will be linked together. When are asked to register for courses, you will be asked to copy the link that is associated with the college you chose and paste it in a new browser window. All of the activities that you will do after you register for classes will be linked together. The last activity for you to complete the AIR Self-Determination Scale.

After you have finished the AIR Self-Determination Scale, you can return to class. If you have any questions at any time during this process, please raise your hand.

Are there any questions?
APPENDIX T: NO INTERVENTION GROUP INSTRUCTIONS
Group B Manual (NI)

Introduce yourself

Say thank you for agreeing to participate in this project. Please sit in front of one of the computers. Open the folder that says “UCF Information.” Inside the folder, find the icon that says, “AIR Self-Determination Scale (Pre).” Double click on this icon.

This is called the AIR Self-Determination Scale. The purpose of this tool is to find out how you learn about what you do well and where you may need help. This is not a test. There are no right or wrong answers. The questions will help you learn about what you do well and where you may need help. Once you have finished the AIR Self-Determination Scale, please minimize the window, and wait for further instructions. If you have any questions, feel free to raise your hand.

You will complete 5 activities, beginning with the application to UCanFnsh. The last activity for you to complete today is the AIR Self-Determination Scale.

After you have finished the AIR Self-Determination Scale, you can log out of Activeworlds and return to class. If you have any questions at any time during this process, please raise your hand.

Are there any questions?
APPENDIX U: PARENT CONSENT
Informed Consent from a Parent for a Child in a Non-medical Research Study

Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being asked to allow your child to take part in a research study, which will include about 250 people. You can ask questions about the research. You can read this form and agree right now for your child to take part, or take the form home with you to study before you decide. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study. Your child is being invited to take part in this research study because he or she is a special education student at Avalon Park Middle School or Corner Lakes Middle School identified with learning disabilities. Additionally, in order to participate in this study, your child must know that he or she has a learning disability. Your signature below indicates that you have discussed your child’s disability with them. You must be an emancipated minor according to the laws of the State of Florida or an adult 18 years of age or older to be able to give this permission and sign this form for your child to take part in this research study.

The person doing this research is Kara Rosenblatt of the College of Education at UCF. Because the researcher is a graduate student, she is being guided by Drs. Lee Cross and Lisa Dicker, UCF faculty supervisors in Exceptional Education.

Study title: Investigation of the impact of virtual learning instruction on the acquisition and practice of self-determination skills in middle school students with learning disabilities.

Purpose of the research study: The purpose of this study is to learn better ways to teach adolescents with learning disabilities self-determination skills.

What your child will be asked to do in the study: Your child will be asked to take the AIR Self-Determination Scale pre and post tests. Your student will also be asked to complete specific tasks that successful college students with learning disabilities exhibit, including completing a modified version of a college application, self-identify themselves as a student with a disability on a college campus, choose a degree and a plan of study, registering for classes, writing a letter to their professors, and advising their professors of the accommodations and/or modifications he or she will use in order to be successful.

Voluntary participation: You should allow your child to take part in this study only because you want to. There is no penalty for you or your child for not taking part, and neither you nor your child will lose any benefits. You have the right to stop your child from taking part at any time. Just tell the researcher or a member of the research team.

University of Central Florida IRB
UCF IRB NUMBER: SRE-09-04079
IRB APPROVAL DATE: 3/12/2009
IRB EXPIRATION DATE: 3/11/2010
that you want your child to stop. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study.

**Location:** The participants will have to go the Toni Jennings Exceptional Education Institute in the College of Education, or in the computer lab/classroom at his or her school.

**Time required:** If your child participates on the UCF campus, he or she will only have to come to campus once, on a Saturday or Sunday for 2 hours. If your child is participating at school, he or she will have to remain after school for 2 hours outside of class.

**Funding for this study:** This research study is being paid for by the Toni Jennings Exceptional Education Institute at the College of Education.

**Risks:** There are no expected risks for taking part in this study. Your child does not have to answer every question or complete every task. Neither you nor your child will lose any benefits if your child skips questions or tasks. Your child does not have to answer any questions that make him or her feel uncomfortable.

**Benefits:** There are no benefits for your child for participating in this study. If at the conclusion of the study, your child decides to log into the virtual environment and watch the self-determination modules and practice the skill application, he or she will benefit from participation in this study. By participating in the virtual environment at the close of the study, your child will learn seven self-determination skills that many college students with learning disabilities have. In addition, researcher interviewed college service providers and they (the service providers) identified these self-determination skills as essential for students with learning disabilities success in college.

**Compensation or payment:** There is no compensation or other payment to you or your child for your child’s part in this study.

**Confidentiality:** Your child’s identity will be kept confidential. The researcher will make every effort to prevent anyone who is not on the research team from knowing that your child gave us information, or what that information is. For example, your child’s name will be kept separate from the information he or she gives, and these two things will be stored in different places.

Your child’s information will be assigned a code number. The list connecting your child’s name to this number will be kept in a password protected computer. When the study is done and the data have been analyzed, the list will be destroyed. Your child’s information will be combined with information from other children who took part in this study. When the researcher writes about this study to share what was learned with other researchers, she will write about this combined information. Your child’s name will not be used in any report, so people will not know how he or she answered or what he or she did.

There are times when the researcher may have to show your child’s information to other people. For example, the law may require the researcher to show your child’s information to a court or to tell authorities if the researcher believes a child abuse situation exists or your child is in danger to himself, herself or to someone else. Also, the researcher may have to show your child’s identity to people who check to be sure the
research was done right. These may be people from the University of Central Florida or state, federal or local agencies or others who pay to have the research done.

An invitation to participate in the virtual environment may be forthcoming, if you are interested in allowing your child to participate in the virtual environment at the conclusion of this study, please include your contact information at the bottom of this form.

**Study contact for questions about the study or to report a problem:** Kara Rosenblatt, Graduate Student, Exceptional Education, College of Education, (813) 300-2885 or Dr. Lee Cross or Dr Lisa Dieker, Faculty Supervisors, Department of Exceptional Education at (407) 823-5477 or by email at lcross@mail.ucf.edu or ldieker@mail.ucf.edu.

**IRB contact about you and your child’s rights in the study or to report a complaint:** Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

**How to return this consent form to the researcher:** By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my faculty supervisor as part of my course work.

☐ I have read the procedure described above

☐ I voluntarily agree for my child to take part in the research

☐ I am at least 18 years of age

☐ I am an emancipated minor per Florida state law

☐ I agree to allow my child to participate in the virtual environment at the study conclusion

☐ I do not agree to allow my child to participate in the virtual environment at the conclusion of the study

☐ I do not agree to have my child audio or video taped

Signature of parent ___________________________ Printed name of parent ___________________________ Date ______________

Signature of parent ___________________________ Printed name of parent ___________________________ Date ______________
<table>
<thead>
<tr>
<th>Printed name of child parent</th>
<th>Phone number for parent</th>
<th>Email address of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Investigator</td>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>
Informed Consent from a Parent for a Child in a Non-medical Research Study

Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being asked to allow your child to take part in a research study, which will include about 250 people. You can ask questions about the research. You can read this form and agree right now for your child to take part, or take the form home with you to study before you decide. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study. Your child is being invited to take part in this research study because he or she is a student at Avalon Park Middle School or Corner Lakes Middle School identified with learning disabilities. Additionally, in order to participate in this study, your child must know that he or she has a learning disability. Your signature below indicates that you have discussed your child's disability with them. You must be an emancipated minor according to the laws of the State of Florida or an adult 18 years of age or older to be able to give this permission and sign this form for your child to take part in this research study.

The person doing this research is Kara Rosenblatt of the College of Education at UCF. Because the researcher is a graduate student, she is being guided by Drs. Lee Cross and Lisa Dieker, UCF faculty supervisors in Exceptional Education

Study title: Investigation of the impact of virtual learning instruction on the acquisition and practice of self-determination skills in middle school students with learning disabilities.

Purpose of the research study: The purpose of this study is to learn better ways to teach adolescents with learning disabilities self-determination skills.

What your child will be asked to do in the study: Your child will be asked to take the AIR Self-Determination Scale pre and post tests, learn about self-determination skills through a PowerPoint presentation. The PowerPoint presentations consist of five modules that explain seven self-determination skills (making decisions, setting goals, requesting supports and services, practicing independence, demonstrating knowledge of the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, solving problems, and expressing self-knowledge). After watching each set of the PowerPoint modules, your student will be asked to take a short, 3 question comprehension check. Your student will also be asked to complete specific tasks that successful college students with learning disabilities exhibit, including completing a modified version of a college application, self-identification as a student with a disability...
on a college campus, choose a degree and a plan of study, registering for classes, emailing their professors, and advising their professors of the accommodations and/or modifications he or she will use in order to be successful. Following the study, your student maybe asked to participate in a focus group.

**Voluntary participation:** You should allow your child to take part in this study only because you want to. There is no penalty for you or your child for not taking part, and neither you nor your child will lose any benefits. You have the right to stop your child from taking part at any time. Just tell the researcher or a member of the research team that you want your child to stop. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study.

**Location:** The participants will have to go the Toni Jennings Exceptional Education Institute in the College of Education, or in the computer lab/classroom at his or her school.

**Time required:** If your child participates on the UCF campus, he or she will only have to come to campus once, on a Saturday or Sunday for 3 hours. If your child is participating at school, he or she will have to remain after school for 3 hours outside of class.

**Audio or videotaping:** If your child is asked to and participates in a focus group, he or she will be audio taped during the focus group session. If you do not want your child to be audio taped, please discuss this with the researcher or a research team member. If you your child is audio taped, the tape will be kept in a locked, safe place until what your child says has been written down. Once it is written down, the tape will be erased or destroyed.

If your child is asked to and participates in a focus group, he or she will be video taped during this study. If you do not want your child to be video taped, please discuss this with the researcher or a research team member. If your child is video taped, the tape will be kept in a locked, safe place until the research is done. When the research is done, the tape will be erased or destroyed.

**Funding for this study:** This research study is being paid for by the Toni Jennings Exceptional Education Institute at the College of Education.

**Risks:** There are no expected risks for taking part in this study. Your child does not have to answer every question or complete every task. Neither you nor your child will lose any benefits if your child skips questions or tasks.

Your child does not have to answer any questions that make him or her feel uncomfortable.

**Benefits:** Your child will learn self-determination skills that many college students with learning disabilities have. In addition, researchers interviewed college service providers and they (the service providers) identified these self-determination skills as essential for students with learning disabilities success in college.

**Compensation or payment:** There is no compensation or other payment to you or your child for your child’s part in this study.

**Confidentiality:** Your child’s identity will be kept confidential. The researcher will make every effort to prevent anyone who is not on the research team from knowing that your child gave us information, or what that information is. For example, your child’s
name will be kept separate from the information he or she gives, and these two things will be stored in different places.

Your child’s information will be assigned a code number. The list connecting your child’s name to this number will be kept in a password protected computer. When the study is done and the data have been analyzed, the list will be destroyed. Your child’s information will be combined with information from other children who took part in this study. When the researcher writes about this study to share what was learned with other researchers, she will write about this combined information. Your child’s name will not be used in any report, so people will not know how he or she answered or what he or she did.

There are times when the researcher may have to show your child’s information to other people. For example, the law may require the researcher to show your child’s information to a court or to tell authorities if the researcher believes a child abuse situation exists or your child is in danger to himself, herself or to someone else. Also, the researcher may have to show your child’s identity to people who check to be sure the research was done right. These may be people from the University of Central Florida or state, federal or local agencies or others who pay to have the research done.

**Study contact for questions about the study or to report a problem:** Kara Rosenblatt, Graduate Student, Exceptional Education, College of Education, (813) 300-2885 or Dr. Lee Cross or Dr Lisa Dieker, Faculty Supervisors, Department of Exceptional Education at (407) 823-5477 or by email at kcross@mail.ucf.edu or ldieker@mail.ucf.edu.

**IRB contact about you and your child's rights in the study or to report a complaint:**
Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

**How to return this consent form to the researcher:** By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my faculty supervisor as part of my course work.

- [ ] I have read the procedure described above
- [ ] I voluntarily agree for my child to take part in the research
- [ ] I am at least 18 years of age
- [ ] I am an emancipated minor per Florida state law
- [ ] I agree to have my child audio taped
- [ ] I agree to have my child video taped
- [ ] I do not agree to have my child audio or video taped

Signature of parent  Printed name of parent  Date

University of Central Florida IRB
IRB NUMBER: SBE-09-06079
IRB APPROVAL DATE: 3/12/2009
IRB EXPIRATION DATE: 3/11/2010
Signature of parent

Printed name of parent

Date

Printed name of child

Principal Investigator

Date
Informed Consent from a Parent for a Child in a Non-medical Research Study

Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being asked to allow your child to take part in a research study, which will include about 250 people. You can ask questions about the research. You can read this form and agree right now for your child to take part, or take the form home with you to study before you decide. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study. Your child is being invited to take part in this research study because he or she is a special education student at Avalon Park Middle School or Corner Lakes Middle School identified with learning disabilities. Additionally, in order to participate in this study, your child must know that he or she has a learning disability. Your signature below indicates that you have discussed your child’s disability with them. You must be an emancipated minor according to the laws of the State of Florida or an adult 18 years of age or older to be able to give this permission and sign this form for your child to take part in this research study.

The person doing this research is Kara Rosenblatt of the College of Education at UCF. Because the researcher is a graduate student, she is being guided by Drs. Lee Cross and Lisa Dieker, UCF faculty supervisors in Exceptional Education.

Study title: Investigation of the impact of virtual learning instruction on the acquisition and practice of self-determination skills in middle school students with learning disabilities.

Purpose of the research study: The purpose of this study is to learn better ways to teach adolescents with learning disabilities self-determination skills.

What your child will be asked to do in the study: Your child will be asked to take the AIR Self-Determination Scale pre and post tests, learn about self-determination skills through a PowerPoint presentation. The PowerPoint presentations consist of five modules that explain seven self-determination skills (making decisions, setting goals, requesting supports and services, practicing independence, demonstrating knowledge of the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, solving problems, and expressing self-knowledge). After watching each set of the PowerPoint modules, your student will be asked to take a short, 3 question comprehension check. Your student will also be asked to complete specific tasks that successful college students with learning disabilities exhibit, including completing a modified version of a college application, self-identification as a student with a disability.
on a college campus, choose a degree and a plan of study, registering for classes, emailing their professors, and advising their professors of the accommodations and/or modifications he or she will use in order to be successful. Following the study, your student maybe asked to participate in a focus group.

**Voluntary participation:** You should allow your child to take part in this study only because you want to. There is no penalty for you or your child for not taking part, and neither you nor your child will lose any benefits. You have the right to stop your child from taking part at any time. Just tell the researcher or a member of the research team that you want your child to stop. You will be told if any new information is learned which may affect your willingness to allow your child to continue taking part in this study.

**Location:** The participants will have to go the Toni Jennings Exceptional Education Institute in the College of Education, or in the computer lab/classroom at his or her school.

**Time required:** If your child participates on the UCF campus, he or she will only have to come to campus once, on a Saturday or Sunday for 3 hours. If your child is participating at school, he or she will have to remain after school for 3 hours outside of class.

**Audio or videotaping:** Your child will be audio taped during this study. If you do not want your child to be audio taped, please discuss this with the researcher or a research team member. If you your child is audio taped, the tape will be kept in a locked, safe place until what your child says has been written down. Once it is written down, the tape will be erased or destroyed.

Your child will be video taped during this study. If you do not want your child to be video taped, please discuss this with the researcher or a research team member. If your child is video taped, the tape will be kept in a locked, safe place until the research is done. When the research is done, the tape will be erased or destroyed.

**Funding for this study:** This research study is being paid for by the Toni Jennings Exceptional Education Institute at the College of Education.

**Risks:** There are no expected risks for taking part in this study. Your child does not have to answer every question or complete every task. Neither you nor your child will lose any benefits if your child skips questions or tasks.

Your child does not have to answer any questions that make him or her feel uncomfortable.

Side effects of VE (virtual environment) use may include stomach discomfort, headaches, sleepiness, dizziness and decreased balance. However, these risks are no greater than the sickness risks participants may be exposed to if they were to visit an amusement park such as Disney Quest (Disney Quest is a VE based theme park), Disney World or Universal Studios parks and ride attractions such as roller coasters. Your child will be given 15-minute breaks during the exercise to lessen the chance that he or she will feel sick. Your child will be instructed to tell the researcher and remain seated until the symptoms disappear if he or she experiences any of the symptoms mentioned.
**Benefits:** Your child will learn self-determination skills that many college students with learning disabilities have. In addition, researchers interviewed college service providers and they (the service providers) identified these self-determination skills as essential for students with learning disabilities success in college.

**Compensation or payment:** There is no compensation or other payment to you or your child for your child's part in this study.

**Confidentiality:** Your child's identity will be kept confidential. The researcher will make every effort to prevent anyone who is not on the research team from knowing that your child gave us information, or what that information is. For example, your child's name will be kept separate from the information he or she gives, and these two things will be stored in different places.

Your child’s information will be assigned a code number. The list connecting your child’s name to this number will be kept in a password protected computer. When the study is done and the data have been analyzed, the list will be destroyed. Your child's information will be combined with information from other children who took part in this study. When the researcher writes about this study to share what was learned with other researchers, she will write about this combined information. Your child's name will not be used in any report, so people will not know how he or she answered or what he or she did.

There are times when the researcher may have to show your child's information to other people. For example, the law may require the researcher to show your child's information to a court or to tell authorities if the researcher believes a child abuse situation exists or your child is in danger to himself, herself or to someone else. Also, the researcher may have to show your child's identity to people who check to be sure the research was done right. These may be people from the University of Central Florida or state, federal or local agencies or others who pay to have the research done.

**Study contact for questions about the study or to report a problem:** Kara Rosenblatt, Graduate Student, Exceptional Education, College of Education, (813) 300-2885 or Dr. Lee Cross or Dr Lisa Dieker, Faculty Supervisors, Department of Exceptional Education at (407) 823-5477 or by email at lcross@mail.ucf.edu or ldieker@mail.ucf.edu.

**IRB contact about you and your child’s rights in the study or to report a complaint:** Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-5477.

**How to return this consent form to the researcher:** By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my faculty supervisor as part of my course work.

☐ I have read the procedure described above

☐ I voluntarily agree for my child to take part in the research
☐ I am at least 18 years of age
☐ I am an emancipated minor per Florida state law
☐ I agree to have my child audio taped
☐ I agree to have my child video taped
☐ I do not agree to have my child audio or video taped

_________________________   ___________________________   __________
Signature of parent       Printed name of parent       Date

_________________________   ___________________________   __________
Signature of parent       Printed name of parent       Date

Printed name of child

_________________________   __________
Principal Investigator       Date
APPENDIX V: STUDENT ASSENT
Student permission to participate in research study on self-determination

My name is Kara Rosenblatt. I am doing a research project on how students your age think about the future and whether or not students your age can learn when you are taught in a virtual environment. I am interested in how students like you learn and what you think about learning in a virtual world. This research is part of my studies at the University of Central Florida.

I have received permission from your parents for you to participate in one of three groups. One group will learn in a virtual environment. The second group will learn the same information as the first group, but through a PowerPoint presentation. The second group will not have access to the virtual environment until the study is over. The third group will not learn the information that the first two groups learned and will not be able to access the virtual environment until the study is over. If you participate in the virtual environment group or in the PowerPoint group, as a way to study how and what students your age think about the future and learning in a virtual environment, I would like to observe some of you and take notes while you learn about some ways to think about your future. I will also videotape you during this time. At the end of the activity, I will give you a survey about what you learned, what you thought about the activity, and what you would change if you had the chance.

Only Drs. Cross and Dieker, my professors at UCF, and I will see the videotapes and notes. I will destroy the research notes and the tapes at the end of the study. No names will be used when reporting any information I learned in the study so that nobody will know it was you in my study.

This will not affect your grade if you decide you don’t want to do this. You will be given multiple opportunities to take breaks. You can stop at any time during this study and you do not have to answer a question if you do not want to. You will not be paid for doing this. You will not get extra credit for doing this. Would you like to take part in this research project?

I want to take part in Ms. Rosenblatt’s research project.

Student’s Signature

Date

University of Central Florida IRB
IRB NUMBER: SBE-09-00079
IRB APPROVAL DATE: 3/12/2009
IRB EXPIRATION DATE: 3/11/2010
LIST OF REFERENCES


transfer to the real world of skills practiced in a virtual environment by students with severe learning difficulties. Maidenhead, UK.


Field, S., Martin, J. E., Miller, R. J., Ward, M., & Wehmeyer, M. L. (1998). Self-


The Journal of Special Education, 37, 174-183.


Promoting self-determination as a curriculum augmentation to promote access to the general education curriculum for students with disabilities. Journal of Special Education, 42, 91-107.

generation and the Internet’s impact on friendships and family relationships.

Washington, D.C.: Pew Internet & American Life Project


Oesterreich, H. A., & Knight, M. G. (2008). Facilitating transitions to college for students with
disabilities from culturally and linguistically diverse backgrounds. Intervention in School and Clinic, 43, 300-304.


determination curriculum: Plan for the future. *Teaching Exceptional Children, 33*(2), 48-
54.

involvement in individualized education program meetings. *Exceptional Children, 70*,
91-112.

Trainor, A. (2003). *Self-determination and postsecondary transition for culturally and
linguistically diverse students with learning disabilities*. Unpublished Doctoral
Dissertation, The University of Texas at Austin.

Trainor, A. (2005). Self-determination perceptions and behaviors of diverse students with LD


youth with disabilities. In M.Wagner, L. Newman, R.Cameto, & P.Levine, *Changes over
time in the early post school outcomes of youth with disabilities: A report of findings
from the National Longitudinal Transition Study and the National Longitudinal


284


