Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability

Shannon Lynn Sparks
University of Nevada, Las Vegas, cr8tnsparks@cox.net

Follow this and additional works at: https://digitalscholarship.unlv.edu/thesesdissertations

Part of the Special Education and Teaching Commons, and the Teacher Education and Professional Development Commons

Repository Citation
https://digitalscholarship.unlv.edu/thesesdissertations/1953

This Dissertation is brought to you for free and open access by Digital Scholarship@UNLV. It has been accepted for inclusion in UNLV Theses, Dissertations, Professional Papers, and Capstones by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.
INCREASING CHOICE-MAKING AND CHOICE AWARENESS FOR STUDENTS
WITH INTELLECTUAL DISABILITY

BY

SHANNON LYNN SPARKS

Bachelor of Science in Education
University of Nevada, Las Vegas
2006

Master of Education
University of Nevada, Las Vegas
2007

A dissertation submitted in partial fulfillment
of the requirements for the

Doctor of Philosophy - Special Education

Department of Educational and Clinical Studies
College of Education
The Graduate College

University of Nevada, Las Vegas
August 2013
We recommend the dissertation prepared under our supervision by

Shannon Sparks

entitled

Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability

is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy - Special Education
Department of Educational and Clinical Studies

Tom Pierce, Ph.D., Committee Chair
Kyle Higgins, Ph.D., Committee Member
Susan Miller, Ph.D., Committee Member
Richard Tandy, Ph.D., Graduate College Representative
Kathryn Hausbeck Korgan, Ph.D., Interim Dean of the Graduate College

August 2013
ABSTRACT

Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability

by

Shannon L. Sparks

Dr. Thomas Pierce, Examination Committee Chair
Professor and Chair
University of Nevada Las Vegas

A number of studies have suggested that when children with disabilities are presented with choice-making opportunities, they can make choices (Bambara, 2004; Carlson, Luiselli, Slyman, & Markowski, 2008; Dibley & Lim, 1999; Manhertz, 2006). Teaching choice-making to students with intellectual disability is an important skill. Students with intellectual disability, when exposed to choice-making, tend to display these skills in future settings as they grow older (Lee, Palmer, Turnbull, & Wehmeyer, 2006). Choice-making research has been limited for high school students with mild to moderate intellectual disability (Dibley & Lim, 1999; Manhertz, 2006; Shevin & Klein, 2004).

The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. This study involved an investigation of choice-making instruction intervention with individuals with intellectual disability.
The researcher used a multiple probe design with one replication for six students with intellectual disability.

The study took place in one 9-12 public high school classroom. One specialized classroom with a special education teacher who served students with mild to moderate intellectual disability was used in this study. Students received daily instruction with choice-making scenarios using still picture photographs. Choice-making training scenarios embedded real life situations that teenagers face daily. Real life choice situations were (a) making a choice on how to tell a friend that you are going to attend his or her birthday party, (b) making a choice on what and how you will spend your money, and (c) making a choice on what to wear to a job interview. This study involved an investigation of daily life choices and choice-making options that high school age students are given everyday.

Lastly, the maintenance of choice-making skills in high school age students with intellectual disability was explored. The results of this study will add to the choice-making body of literature. Additionally, this study provided strategies for teachers to implement choice-making with a variety of students with disabilities.
ACKNOWLEDGEMENTS

First, and foremost I give credit to the most high for directing my every steps throughout my study. With man this is impossible, but with God all things are possible, Matthew 19:26. I want to thank everyone who has served as mentors past and present, and who made me the individual that now stands before you.

I want to personally thank Dr. Tom Pierce for not only being my advisor, but a wealth of support in every way possible. I cannot thank you enough for taking your time to meet me with me to brainstorm my ideas throughout my doctoral studies, keeping me on my toes, and reminding me to slow down and breathe. You have provided me with so much, and for that I am eternally grateful. Again, thank you!

I want to personally thank Dr. Kyle Higgins for your motivation and enthusiasm. If it was not for you telling me about the opportunity to obtain my masters during my bachelors program, I would not have advanced to the next level. Once I attained my masters, you intrigued my interests by introducing me to the Ph.D program, and now here I am graduating with my doctorate degree. Thank you for having faith in me, and now I can tell you THANKS in caps!

I want to personally thank Dr. Susan Miller for her continual support throughout my program. I took my first class with you in the doctoral program and was amazed by your gentle spirit. Thank you for helping me with my design of my study and providing me with all of the supports I needed in order to graduate. Thank you, Dr Miller! Thank you to Dr. Richard Tandy for serving on my committee, and sharing your expertise with me.

I want to personally thank my mom. Wow, I do not even know where to begin. Mom you have always believed in me, told me to keep pressing forward, and wanted me to be a
strong grasshopper. You are such a strong spirit, full of love, and humbleness. Whenever I needed you, you would answer your phone no matter what you were doing, giving until you could give no more. I love you so much and I am grateful for the relationship we continue to share. You and I have a special bond that will never be broken, you are my mother, my mentor, my guardian angel, and I will always cherish the memories that you have engraved in my heart!

I want to personally thank my dad. Dad, you never cease to amaze me. Thank you for your support, your love, and being there for me. I will never get tired hearing one of your jokes, or you programming silly stuff in my iPhone calendar telling me to wash Dad’s car, or asking Siri to be quiet and you giggling in the background. Thank you for being my father and showing me what it means to be a hard worker!

I want to thank my husband, Kevin Sparks, thank you for support throughout my career. I believe that I have been going to school since the day you met me. Thank you for your patience, words of encouragement, and supporting me with unconditional love. Thank you for the daily growth in our relationship, and the situations we have overcome as a family. Now, we can have a movie night together where I am not typing on my computer and you are the only one watching the movie. I feel honored to have your support during this entire program, and graciously share this degree with you!

I thank my daughters, Bailey and Tomi Sparks. I am honored to be your mother, and was awarded this wonderful opportunity. It does not matter what cards you have been dealt in life you have the opportunity to always turn it around and run, do not look back. So I encourage both of you to keep on the path and never let anyone or anything get in your way.
I want to thank Pam Juniel for helping me with data collection, and being my ‘go to’
gal. I thank all my fellow UNLV colleagues; you know who you are, for your continual
support and words of encouragement.

I thank my personal friends, Micah Henry, Wendy Carrion, Sarina Jackson, and
Dolores Williamson for being in my life. Micah we will always have a special bond no
matter what. Wendy you have known me since high school and have always had faith in
me. We will always be 18! Sarina, thank you for being there since middle school, we
have maintained our friendship throughout the years despite my crazy schedule. Dolores,
you have made my world a wonderful place, how can I forget you were the first to make
me fudge during our Bachelor’s program, we became friends instantly. I am so grateful
for the friendships that I have maintained throughout the years, and will continue to
relish.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td>CHAPTER 1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Research Questions</td>
<td>5</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>5</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>6</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>7</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>9</td>
</tr>
<tr>
<td>Summary</td>
<td>10</td>
</tr>
<tr>
<td>CHAPTER 2 REVIEW OF LITERATURE</td>
<td>12</td>
</tr>
<tr>
<td>Choice-Making</td>
<td>13</td>
</tr>
<tr>
<td>Concepts Related to Choice-Making</td>
<td>14</td>
</tr>
<tr>
<td>Choice-Making Instruction</td>
<td>16</td>
</tr>
<tr>
<td>Summary</td>
<td>42</td>
</tr>
<tr>
<td>CHAPTER 3 METHODOLOGY</td>
<td>44</td>
</tr>
<tr>
<td>Research Questions</td>
<td>45</td>
</tr>
<tr>
<td>Participants</td>
<td>46</td>
</tr>
<tr>
<td>Setting</td>
<td>49</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>49</td>
</tr>
<tr>
<td>Materials</td>
<td>52</td>
</tr>
<tr>
<td>Design</td>
<td>55</td>
</tr>
<tr>
<td>Procedures</td>
<td>58</td>
</tr>
<tr>
<td>Reliability Measure</td>
<td>65</td>
</tr>
<tr>
<td>Treatment of Data</td>
<td>66</td>
</tr>
<tr>
<td>CHAPTER 4 RESULTS</td>
<td>67</td>
</tr>
<tr>
<td>Interobserver Reliability</td>
<td>81</td>
</tr>
<tr>
<td>Summary of Results</td>
<td>83</td>
</tr>
</tbody>
</table>
CHAPTER 5 DISCUSSION

Students Performance of Choice-Making ........................................... 87
Limitations ......................................................................................... 93
Teachers Perception of Choice-Making Training .................................. 94
Conclusions Based on Choice-Making Study ........................................ 95
Summary and Implications for Practice .................................................. 95
Implications for Future Research ............................................................ 97

APPENDICES ......................................................................................... 99

A. STUDENT ASSENT FORM ................................................................... 99
B. PARENT CONSENT FORM ................................................................. 101
C. ADULT CONSENT FORM .................................................................... 104
D. SCREENING TEST ............................................................................. 107
E. STUDENT DEMOGRAPHIC QUESTIONAIRRE ..................................... 110
F. CHOICE-MAKING SCENARIO PRETEST ............................................... 112
G. CHOICE-MAKING SCENARIO POSTTEST ........................................... 115
H. CHOICE-MAKING SCENARIO BASELINE PROBE ............................... 118
I. CHOICE-MAKING SCENARIO MAINTENANCE PROBE ....................... 129
J. CHOICE-MAKING SCENARIO SCORING RUBRIC ................................. 132
K. INSTRUCTIONS AND SCRIPT FOR CHOICE-MAKING TRAINING .......... 134
L. CHOICE-MAKING TRAINING SCENARIOS .......................................... 139
M. PROCEDURAL FIDELITY CHECKLIST FORM ..................................... 170
N. PERMISSION FOR SCHOOL PARTICIPATION .................................... 172
O. SOCIAL VALIDITY QUESTIONNAIRE ................................................. 174

REFERENCES ....................................................................................... 176

VITA ........................................................................................................ 185
LIST OF TABLES

Table 1 Participant Demographics Questionnaire .......................................................... 47
Table 2 Choice Making Training Scenario Topics .......................................................... 63
Table 3 Correct Choice Options Identified During Pre and Posttest ............................... 69
Table 4 Choice-Making Pre and Posttest Scores ......................................................... 69
Table 5 Probes and Sessions Received by Each Participant ....................................... 71
Table 6 Choice-Making Baseline Mean, Ranges, and Standard Deviation ................. 72
Table 7 Choice-Making Treatment, Mean, Ranges, and Standard Deviation ............. 74
Table 8 Choice-Making Maintenance I and II Percentages ..................................... 76
Table 9 Choice-Making Maintenance I Mean and Ranges ...................................... 76
Table 10 Choice-Making Maintenance II Mean and Ranges ................................... 77
Table 11 Choice-Making Maintenance Mean, Ranges, and Standard Deviation ....... 77
Table 12 Choice-Making Treatment and Maintenance Percentages ....................... 78
Table 13 Social Validity Questionnaire of the Special Education Teacher .............. 81
Table 14 Interobserver Agreement Measure Data ..................................................... 83
CHAPTER 1

INTRODUCTION

Choice-making is a fundamental part of one’s life and is a necessary skill for major life transitions. Adults make major life choices when it comes to a spouse, career preferences, or how they want to spend their money (Jolivette, Peck-Stichter, Sibilsky, Scott, & Ridgley, 2002). Adults make daily choices regarding what they want to eat and what they are going to wear. Choice-making is a necessary, cherished, and valued component of everyday life (Guess, Benson, & Siegel-Causey, 2008). When individuals make choices they are seen as dignified, independent, and autonomous. Choice-making skills enhance the lives of students with intellectual disability by providing them with opportunities for successful transitions into adulthood (Trainor, 2007). Many individuals take the ability and opportunities involved with choice-making for granted. In order to be an independent self-functioning adult, it is vital that children with intellectual disability possess the ability to take advantage of choice-making and opportunities that are presented to them (Stafford, 2005). Thus, choice-making opportunities must be given to children while they are still part of the school community (Stafford, 2005). When children with intellectual disability are denied the right to choice-making, they are prevented from advocating for themselves and achieving desired quality of life outcomes (Hoffman & Field, 1995). Children with intellectual disability face barriers to developing choice-making skills as they move through school (Stang, Carter, Lane, & Pierson, 2009). These barriers include poor self-awareness, learned helplessness, low self-esteem,
self-deprecation, and lack of recognition of one’s strengths and weaknesses (Field, 1996; Field & Hoffman, 1994).

As a result, children with intellectual disability must be provided with strategies to help them develop choice-making skills while in school. The incorporation of choice-making in the education process can facilitate positive experiences for children with intellectual disability and increase their opportunities for success in school (Cote-Sparks & Cote, 2012). While in school, children with intellectual disability must learn to recognize that choice-making is an integral part of goal setting and problem solving. As a result, these children can begin to set basic goals, and realize that there are consequences of choice-making.

A typical developmental sequence for choice-making involves a complex set of functions that must be present (Van Tubbergen, Warshausky, Birnholz, & Baker, 2008). Van Tubbergen et al. (2008) identified that a child must first attend to and possess cognitive-motoric abilities. Also, exogenous functions must be present in order for a child to make choices. Exogenous functions are developed in the first six months of an infant’s life when visual attention is first achieved. Second, alertness is the stage when an infant’s environment serves as a state of arousal or curiosity. Third, spatial orientation is the stage when an infant shifts his or her visual attention to a particular location or space. Finally, object attention is the stage when focus is directed to the color and form, and the object is identified (Van Tubbergen et al., 2008). These abilities must be present and jointly combined for endogenous functions to be achieved (Colombo, 2001). A typical infant develops endogenous functions between four and seven months of age. During this time, a child learns how to signal, direct attention to, and purposefully choose to focus attention
on a stimulus or item of interest. When visual and attention skills are developed, this allows for the beginning stages of choice-making to develop (Van Tubbergen et al., 2008).

Pointing typically develops between 8 and 13 months of age (Carpenter & Carpenter, 2010). Motor behaviors, eye gaze, and self-regulation also develop early in infants and toddlers (Palmer, 2010). Between 6-9 months, infants begin to signal wishes and preferences to caregivers. This is where choice-making becomes apparent. As the infant progresses and becomes a toddler he or she is able to make requests, follow simple commands, and gain satisfaction from these choice requests (Van Tubbergen et. al, 2008).

Cognitive ability plays a vital role when it comes to choice-making. It is important for children with intellectual disability to have knowledge and awareness of the choices that are presented to them (Smyth & Bell, 2006). Typically developing children, as they mature, make choices through verbal communication (Van Tubbergen, Omichinski, & Warschausky, 2007). As typical toddlers transition into elementary school, they are presented with opportunities to make choices. However, children with intellectual disability are presented with fewer opportunities to make choices than their typically developing peers (Clark & McDonnell, 2008).

The degree to which children with intellectual disability experience choice-making influences their quality of life. The situations in which a child is provided with a variety of supports in choice-making helps develop self-determination (Wehmeyer, 2005; Smyth & Bell, 2006). Wehmeyer and Schwartz (1998) identified the components of self-determination as (a) decision-making, (b) self-management, (c) choice-making skills, (d)
setting and achieving goals, (e) leadership, (f) self-awareness, (g) positive attributes and outcome expectations, (h) problem solving, (i) self-knowledge, (j) development of internal locus of control, and (k) self-advocacy. Field et al. (1998) summed up self-determination as a combination of skills that empowers an individual. Choice-making is one component of self-determination. Children with intellectual disability must have self-determination skills (i.e., choice-making, problem solving, self-awareness) that will ultimately empower them and shape their futures.

**Purpose of the Study**

Research indicates that when educators engage a child with a disability to make choices, this opens doors to endless opportunities for him or her (Clark & McDonnell, 2008). When taught to make choices children with intellectual disability can learn to choose wisely and see the effects of choice-making (Clark & McDonnell, 2008). Researchers have presented a clear understanding of what choice-making entails, the independence and participation it provides, instructional strategies that can be implemented, and barriers that need to be overcome to allow choice-making opportunities for all children with disabilities (Clark & McDonnell, 2008; Sigafoos & Dempsey, 1992).

The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. Current research indicates that choice-making is an important skill for children with intellectual disability to possess (Bambara, 2004). A number of studies have suggested that when children with disabilities are presented with choice-making opportunities, they can make choices (Bambara, 2004; Carlson, Luiselli, Slyman, & Markowski, 2008; Dibley & Lim,
1999; Manhertz, 2006). To address this area of need the following questions will be answered:

Research Questions

1. Will choice-making training be effective in teaching students with intellectual disability to identify correct choices?
2. Will students with intellectual disability be effective in maintaining choice-making skills?
3. What was the special education teacher’s perception of the implementation of the choice-making study?

Statement of the Problem

Individuals with intellectual disability often experience difficulties in developing choice-making skills (Stang et al., 2009). Some of the barriers that impede the development of this skill include poor self-awareness, learned helplessness, low self-esteem, self-deprecation, and a lack of recognition of personal strengths and weaknesses (Field, 1996; Field & Hoffman, 1994).

For many students with disabilities, the development of choice-making skills and the abilities to evaluate the outcomes of the choices is not innate. This must be taught using direct instruction, so that students develop strategies to use as they make and evaluate choices. These strategies can facilitate students’ positive educational and personal experiences and increase opportunities for success in school and beyond (Stang et al., 2009). The ultimate goal is to provide students with personal control as well as respect
for the choices made (Wehmeyer, 2005). Students with significant speech impairments, limited mobility, intellectual disability, learning disabilities, behavioral challenges, and autism benefit from opportunities that allow them to engage in choice-making (Moes, 1998; Shrogen, Faggella-Luby, Bae & Wehmeyer, 2004; Trainor, 2007; Van Tubbergen et. al., 2008; von Mizener & Williams, 2009).

**Significance of the Study**

Individuals with intellectual disability need to acquire choice-making. They face numerous choice-making situations (Bereby-Meyer, Assor, & Katz, 2004). Many children with disabilities are viewed as unskilled in this area. The individuals who provide supports to these children view them as incapable and when choices are made, the choices are not viewed as being in their best interests (Guess, Benson, Siegel-Causey, 2008; Shevin & Klein, 2004). More opportunities to make choices should be presented to children with intellectual disability so they become aware of their preferences (Canella, O’Reilly, & Lanconi, 2005). Often, children with intellectual disability do not receive instruction in the area of choice-making. Very often staff, family members, or caregivers make choices for them (Agran, Storey, & Krupp, 2010). This invalidates their choice-making opportunities and the child with an intellectual disability is seen as vulnerable (Shevin & Klein, 2004). It is apparent that children with intellectual disability must be provided with choice training in order to be seen as capable of making a choice.

When choice-making is provided to children with intellectual disability they experience increased personal autonomy (Shevin & Klein, 2004). When provided with choice training, children with intellectual disability learn to recognize the choice-making
opportunities they have in every situation (Manhertz, 2006), and recognize they have more than one choice possibility when given an array of options (Shevin & Klein, 2004).

Research has been limited in the area of choice training for high school students with intellectual disability. This study will assess the effects of choice training to increase the identification of correct choices in high school students with intellectual disability. The participants in the study will be high school students with intellectual disability who will receive choice training in a self-contained classroom. Information gained from this research will be a resource tool to improve choice-making instruction for students with intellectual disability. Additionally, if the results are positive, the procedures may be used to provide choice training to other students with intellectual disability.

**Definition of Terms**

**Choice-Making**

Choice-making is defined as the act of selecting from several options (Shevin & Klein, 2004). Choice options can consist of presenting two or more choice selections for the student to select from. An indication of student choice-making can be exhibited through pointing, gesturing, labeling, facial expressions, or orally stating a preference (Snell & Brown, 2011).

**High School ID Curriculum**

For this study, the delivery of services for students with mild to moderate intellectual disability focuses on academics, daily living skills and a functional curriculum (e.g., independent living skills, cooking, self-help skills, etc.), and academic skills (e.g.,
functional math, functional English, functional reading, pre-vocations, independent living, and or career explorations).

**Individualized Education Program**

An individualized education program (IEP) is a written plan or statement for a student with a disability. The IEP is developed and reviewed as needed. The IEP details the present and academic levels of students noted through teacher observation, formal, and informal testing (Individuals with Disabilities Education Act, 20 U.S.C. § 1401 [14]; 20 U.S.C. § 1414 (d)(1)(B)).

**Intellectual Disability**

Intellectual disability is defined as significant limitations in the areas of intellectual functioning and adaptive behavior. These limitations affect everyday practical and social skills. An intellectual disability is evident before the age of 18 (American Association on Intellectual and Developmental Disabilities, 2012).

**Quality of Life**

Quality of Life (QOL) refers to a set of attributes that enhances one’s personal well-being. Quality indicators are (a) emotional well-being, (b) interpersonal relations, (c) material well-being, (d) personal development, (e) physical well-being, (f) self-determination, (g) social inclusion, and (h) rights (Schalock, 2004).

**Related Services**

Related services refers to the following services that are provided to children with disabilities: (a) speech and language, (b) psychological, (c) nursing, (d) social work, (e) occupational therapy, (f) physical therapy, and (g) interpreting. These services entitle a student with a disability to receive a free and appropriate public education that is detailed
in an individualized education program (IEP) (Friend, 2008; 20 U.S.C. § 1401 [26]).

Related services are determined by thorough assessment and review on an individualized basis by the IEP team (Downing, 2004).

**Self-Contained Classroom**

The self-contained setting is a specialized classroom with a special education teacher who serves students with mild, moderate, and severe disabilities. Students spend a significant percentage (i.e., 70%) of their time in the self-contained setting and participate in some related arts or activities with typical peers (Friend & Bursuck, 2002).

**Self-Determination**

Self-determination refers to a student being the causal agent in his or her life. The individual is free to make choices and decisions regarding his or her life. These choices and decisions are free from external influence or interference regarding one’s quality of life (Wehmeyer, 1996; Wehmeyer & Palmer, 2002).

**Special Education**

The term special education refers to specially designed instruction that is provided at no cost to a parent. A child’s special education needs can be met in the following instructional settings: (a) classroom, (b) home, (c) hospital, (d) institution, or (e) other settings (Friend, 2008; Individuals with Disabilities Education Act, 20 U.S.C. § 1401 [29]).

**Limitations of the Study**

The limitations of the choice-making study were:

1. The classroom selected was based on convenience sampling.
2. The study was conducted at a comprehensive high school campus, in one self-contained classroom. The results may have differed if conducted at a different location, or school setting.

3. The intervention was conducted over 9 weeks. If the intervention was implemented for a shorter or longer period of time the results of the study may have varied.

4. The intervention was implemented with high school aged students with intellectual disability. The results may have differed if the study was conducted with varying age levels.

**Summary**

Teaching choice-making to students with intellectual disability is an important skill. Students with intellectual disability, when exposed to choice-making, tend to display these skills in future settings as they grow older (Lee, Palmer, Turnbull, & Wehmeyer, 2006). Wehmeyer, Shogren, Zager, Smith, and Simpson (2010) identified choice-making, decision-making, problem-solving skills, and self-advocacy as component elements of self-determined behavior. Because the ability to make choices and evaluate the outcome of the choice is a component of self-determination, it is important to begin choice training with students with intellectual disability, so that they develop this important life skill (Palmer, 2010; Wehmeyer, 2005; Wehmeyer & Schwartz, 1998).

Choice-making research has been limited for high school students with mild to moderate intellectual disability (Dibley & Lim, 1999; Manhertz, 2006; Shevin & Klein, 2004). The purpose of this study will be to determine if high school students with
intellectual disability, when given choice training, will improve their choice selections. The results of this research will provide opportunities for future researchers to conduct choice training with all individuals with intellectual disability.

In the subsequent chapters details of this study are explained. A review of choice-making and preference literature is discussed in Chapter 2. Methodology and research design is discussed in Chapter 3. Results from the research will be provided in Chapter 4 and discussion of the results will be provided in Chapter 5.
CHAPTER 2
REVIEW OF LITERATURE

The purpose of this chapter is to review the literature and research related to choice-making of individuals with disabilities. The chapter begins with a brief introduction of how literature searches were conducted. Next, follows the criteria used in selecting literature. A review of concepts related to choice-making: the normalization principle, self-determination, quality of life, and choice-making instruction will be introduced. Finally, a breakdown of studies that have been conducted in the area of preference and choice-making with all students with disabilities, beginning from early childhood special education to adulthood are included in the review.

A review of articles was conducted through an extensive search of library databases looking at articles published between 1992 and 2012. Databases included (a) ERIC (Education Resources Information Center), (b) Pro Quest Dissertations and Theses, and (c) Academic Search Premier. Keyword search criteria included choice-making, choice-making and students with disabilities, how to teach choice-making, choice-making and students with autism, choice-making with students and intellectual disability, choice-making and students with mental retardation, choice-making and students with emotional and behavioral disorders, and choice-making and preference. The following criteria were used when selecting articles for the review of the literature (a) participants identified as having a disability (i.e., intellectual disability, autism, emotional and behavioral disability), (b) participants identified as receiving some type of intervention (i.e., choice
awareness instruction, object/picture presentation) and, (c) indicators of choice were AAC devices, pointing, gesturing, smiling, and/or nodding.

**Choice-Making**

Choice-making is defined as the act of selecting from several options (Shevin & Klein, 2004). Choice-making is the right, privilege, or opportunity in which an individual freely selects or decides what he or she wants (Smith, Morgan, & Davidson, 2005). Often, choice involves a selection of a preferred alternative from several options that requires critical decision-making and ultimately accepting the consequences of the decision made (Shevin & Klein, 2004). For students with disabilities, the opportunity to make choices can be defined as an expression of their wishes and desires (Shrogen, Faggella-Luby, Bae & Wehmeyer, 2004). Choice-making is a fundamental part of life and is a necessary skill for major life transitions and quality of life (Smyth & Bell, 2006).

Adults make daily choices regarding their major and minor life decisions (Jolivette, Peck-Stichter, Sibilsy, Scott, & Ridgley, 2002). The ability to make appropriate choices is a skill that is practiced and rewarded (or not) over time. It is vital that students be taught choice-making skills and provided opportunities to evaluate choice-making at an early age, in order for them to be independent adults (Stafford, 2005). When students with disabilities are denied the opportunity to use choice-making, they are prevented from advocating for themselves and achieving desired outcomes (Hoffman & Field, 1995). While typically developing peers make choices and exercise control over their lives and environment, students with disabilities are limited in these experiences; they are fearful of making wrong or unpopular choices (Harris, 2003). Nonetheless, students with
disabilities must be taught that they can make choices and exercise control over their surroundings (Wehmeyer et al., 2010).

Choice-making has been modified and adapted by many researchers (Shevin & Klein, 2004; Van Tubbergen, Warshausky, Birnholz, & Baker, 2008). Choice-making consists of providing several options where the individual with a disability chooses what he or she wants (Shevin & Klein, 2004). Choice-making selection can begin with the selection of two or more choice options. It should be assumed that many individuals with disabilities have choices that are recognized by the individuals who surround them (e.g., parents, family, teaching staff). Delivery of choice-making should be provided in a meaningful manner including setting parameters for acceptable behavior. Choice-making can be provided in a variety of settings with a variety of objects (i.e., activities, partners, food, toys) (Shevin & Klein, 2004).

**Concepts Related to Choice-Making**

**Normalization Principle**

Nirje (1972) stated that the normalization principle allows individuals with disabilities to be self-determined. People with disabilities need to be given opportunities to participate in the same activities as their non-disabled peers. The normalization principle allows individuals with disabilities to make decisions in everyday life activities. Individuals with disabilities need to be provided with activities that are as normal as possible and conform to the norms of society. Nirje stressed that being *human* means that one is allowed to make mistakes and individuals with disabilities are included in this normalization principle (Nirje, 1972). This means being allowed to make decisions about
one’s own life, welfare, living arrangements, and job preference. Individuals with disabilities should be given opportunities that allow them to engage in choice-making that will lead to success as well as disappointments (Nirje, 1972).

**Self-Determination**

Haelewyck, Bara, and Lachapelle (2005) defined self-determination as a set of necessary skills that need to be taught to individuals with disabilities to enable them to have control over their own lives. This means they are free to make their own choices and they do not have any external factors that influence them. They are free to express their own needs and wants, make good or bad decisions, and have the ability to make choices about their own lives. Self-determination helps students advocate for their own direction in life. Self-determination is an important quality for students with disabilities to possess.

**Quality of Life**

Merriam Webster’s Dictionary (2008) defined ‘quality’ as a degree of excellence. ‘Life’ is defined as the period of birth to death. For some, quality of life may involve pursuing dreams, accomplishing goals, and living life to the fullest. Other individuals may be content with where they are at the present moment. Emerson and Hatton (1996) expressed that quality of life is one in which people with disabilities receive full supports in community life, are helped in developing independence and skills, are given choices to have control of their life, and are treated with the highest respect in an environment that is safe and secure for them.
Choice-Making Instruction

Choice-Making and Early Childhood

Choice-making and evaluation can be incorporated in the classroom. Liso (2010) investigated choice-making on task performance reward. Liso (2010) taught three young participants choice-making who attended an inclusive university school program. An alternating treatment design was used. During the choice condition, two toys were presented to participants. Two pairs of toys were offered during the condition. Condition assignments were altered with 6 days being the minimum and 12 days being the maximum. Data were recorded as high if there were high levels of engagement in either one of the conditions. A third condition was presented to evaluate the effectiveness of the two treatment conditions. During the choice condition, the experimenter allowed the participants to choose between the two preferred toys. The experimenter extended his or her arm and prompted participants. Pointing or reaching towards the item indicated choice. Data were recorded in 10-second intervals. Cues were given via a tape recorder and headphones in assessing participants’ engagement or non-engagement. A total of 48 intervals were conducted.

Results of the study showed that one of the participants had a higher rate of engagement during the child choice condition. Liso (2010) concluded it was apparent that all participants displayed preference when given a preference assessment. The author suggested that future research be conducted with young children with other disabilities in naturalistic settings. Choice-making reinforces the opportunity to practice communication, and gives students with disabilities control over their environments.
Harding et al. (1999) examined how positive and negative reinforcement affected allocated time, problem behavior, and parent instruction during a choice assessment with pre-school aged children with problem behaviors. The participants were two children with severe behavior problems. Phase one of the study involved implementation of a multiple schedule design to evaluate the participants’ preferences across a group of toys that were identified by the parent or guardian. Participants were evaluated on how long they engaged with each toy and the largest number of intervals was identified as a highly preferred toy, and others were scored as a low preferred toy. During phase two, a multielement design was used to identify how positive and negative reinforcement was used to maintain problem behavior. During phase three, a concurrent schedule design was used to test positive reinforcement on time allocation across the first two choice conditions. During this phase a reversal design was added to evaluate the positive and negative reinforcement on time allocation across the three conditions. The participants had the option of interacting with the stimuli and were able to choose between choice areas. The parent always occupied one of the choice areas. Phase four consisted of conducting follow up probes for nine months. Behaviors were evaluated using a six second partial interval recording system from a set of videotapes. Data were collected and assessed on parental delivery of instructions using two observers independently to collect data from the sessions.

The results of the study showed that both participants maintained appropriate social interactions, and inappropriate behaviors greatly decreased when provided with choice-making. Harding et al. (1999) concluded that the research provided a reliable tool to evaluate the influence of positive and negative reinforcement. More research was
suggested to investigate varying dimensions and identifying specific treatment packages for individuals with disabilities.

Clark and McDonnell (2008) examined the effects of an intervention that included accommodations (i.e., visual), preference assessments (i.e., daily), and instructional strategies (i.e., naturalistic) on the accuracy of choice-making responses. Clark and McDonnell (2008) studied three preschool age participants who attended a preschool or kindergarten program for two days a week meeting the criteria of legal blindness or had a diagnosis of cortical visual impairment (CVI) with multiple disabilities.

A variety of materials were used in the study (e.g., food, beverages, favorite objects). Choices were the dependent measure in the study (i.e., reaching for item, touching). Participants’ responses were recorded for preferred and non-preferred items. A multiple probe design across participants was conducted to evaluate the effectiveness of the intervention on teaching students with visual impairments and multiple disabilities. A series of assessments were conducted with the participants. Baseline consisted of giving participants choice-making opportunities (i.e., five opportunities within each activity). During intervention, the teacher provided a verbal request with a one-second delay. A one-second delay was presented for four days, allowing the participants over 40 choice-making opportunities. On the fifth day of observation the constant time delay went from a one-second delay to a five-second delay. Follow-up probes were conducted during the generalization and maintenance phases. Phases were conducted in a variety of settings with different individuals.

The results of the study suggested that the intervention increased accuracy of participant choice when presented with preferred and neutral items (i.e., food, beverages,
Clark and McDonnell (2008) noted that future research should focus on generalization and maintenance of skills to ensure they were maintained. They also suggested that future studies should be conducted with individuals with multiple disabilities and visual impairments to increase generalizability of choice across different populations.

Jolivette, Peck-Stichter, Sibilsky, Scott, and Ridgley (2002) investigated the (a) rate of naturally occurring choice-making opportunities, (b) opportunities that were offered or initiated, and (c) how choice-making opportunities affect social behaviors. Jolivette et al. (2002) investigated a study with 14 preschool children from four to five years of age who attended an inclusion-based program. Seven of the participants were identified as having a speech and language disorder or developmental delay. The remaining participants without disabilities were identified as being at-risk for school failure.

Data were collected in observational booths using a 10 second partial interval system behind two-way mirrors (Jolivette et al., 2002). Each participant was engaged in an activity that was deemed developmentally appropriate (i.e., theme table, gross motor area, reading area, dramatic play). The dependent variables were (a) who initiated the choice-making opportunity (b) a specified choice-making opportunity (c) task engagement (i.e., the participant has eyes on the material for seven seconds) (d) off-task (e) non-engagement (f) and (g) aggression.

Results of the study suggested that when teaching staff-initiated opportunities for choices to participants with and without disabilities choice-making increased. Jolivette et al. (2002) suggested that choice-making opportunities should be provided to children with and without disabilities. They noted that children with limited skills were given
fewer choice-making opportunities. They added future research should focus on naturally occurring choice-making opportunities with children who are at-risk, and those with disabilities. Additionally, future choice-making research should focus on a greater sample size in multiple preschool settings.

**Choice-Making and Elementary-Age Students**

Sigafoos and Dempsey (1992) explored the idiosyncratic gestures (i.e., movement or communication that is verbal or nonverbal such as pointing, or nodding) in three children with multiple disabilities. The purpose of the study was to test whether or not children with disabilities used idiosyncratic gestures (i.e., smile, nod, refusal) to indicate choice, since persons with severe or profound intellectual disability are capable of choice-making and can use other modes of communication to indicate a choice or a preference. The participants’ classroom was a self-contained setting located in a public school that served children with physical and intellectual disability (Sigafoos & Dempsey, 1992).

The authors used a reversal design. Assessed target behaviors were based on each participants’ existing idiosyncratic gestures. Choice-making opportunities were provided in the classroom using food and beverage items (e.g., milk, juice, cake, cookie). Choice-making was recorded when the participant (a) reached or exhibited interest in a presented item (i.e., two items within 15 seconds of it being offered), (b) was able to maintain eye contact (i.e., looked at the item for at least 3 seconds), and (c) expressed like (e.g., facial expression, attempted vocalization). Video recording was used to collect data of each participant’s session.

The study resulted in all participants displaying and exhibiting idiosyncratic gestures that showed that they possessed choice-making behaviors. When opportunities for
choice-making were made available, each participant indicated a choice for one of the two items presented. Sigafoos and Dempsey (1992) stressed that it was important for educators and parents to be aware of children’s idiosyncratic gestures or acts that may function as choice-making. The researchers noted that future research should be conducted with other objects or activities using the same methodology, and existing choice-making behaviors with all individuals with disabilities who lack these present choice-making skills needs to be further investigated.

Stafford (1999) investigated a series of choice levels to see if they were effective in choice-making instruction with individuals with intellectual disability. Stafford (1999) also assessed if constant time delay was an effective strategy for teaching choice-making to five students with severe intellectual disability. The participants attended a public elementary school and ranged from 5 to 10 years old. In order to participate in the study they needed to reach toward stimuli and follow one-step commands. The study took place in an unoccupied classroom setting and was individualized allowing for a one-on-one intervention. Materials in the study consisted of preferred food and leisure items that were suggested by parents, and related service personnel that worked with the participants.

Stafford (1999) conducted a multiple probe design across settings. This study consisted of four phases. The first phase consisted of a preference assessment, and included four intervention phases. The phases were (a) baseline (i.e., presenting preferred and disliked items), (b) choice-making between preferred and dislike items (i.e., replication of baseline and introducing time delay), (c) choice-making between preferred and neutral items, and (d) choice-making between two preferred items.
Data were collected on the choices made by each participant. Researchers recorded the number of occurrences of each participant’s response (e.g., waiting errors, responses). Reliability checks were conducted throughout the study. The results of the study showed that children with severe disabilities were capable of making choices. They were able to increase the number of independent choices during each phase. Stafford (1999) noted that the research contributed to the literature by using constant time delay to teach choice-making. Stafford (1999) suggested that further choice-making sequences should be incorporated with children at a young age to help identify personal preferences beginning with simple choices. Lastly, choice-making opportunities should be integrated into the curriculum for all students with disabilities.

Van Tubbergen, Warschauisky, Birnholz, and Baker (2008) investigated choice-making, assessed it across domains, and provided a framework for conceptualization with children with speech and motoric impairments. Van Tubbergen et al. (2008) studied an eight-year-old girl with a congenital brain malformation. The setting took place at the participant’s school. She had an occupational therapist who placed a switch on the wheelchair so the young girl could access the computer. A computer game with a narrative was used during instruction. The participant was required to activate the game during regular intervals. In order to continue the game, the participant had to switch between activation and scanning. Choices varied from the participant being able to choose the character or vehicle. A dichotomous choice screen was developed to determine choice-making responses and to assess the participant’s choice-making abilities. The instrument used eye gaze and multiple-choice questions that utilized a yes or no format. The participant responded to yes or no questions by indicating yes (i.e.,
smiling and moving her head and eyes in an upward position), and no (i.e., lowering her head down to her chest). Choice-making opportunities were provided during activities within the school setting and in the home environment.

Results of the study suggested that the participant refined her gestures for yes and no, so that a variety of communicative partners could understand what she chose. The participant’s choice-making abilities increased. Van Tubbergen et al. (2008) suggested that the model served as a hierarchy and could be applied and used with students with significant motor and communicative impairments. Van Tubbergen et al. (2008) concluded that the choice-making model hierarchy could be used and implemented to increase self-determination in individuals across the home, school, and community.

Jolivette, Wehby, Canale, and Massey (2001) investigated choice-making opportunities with students with emotional and behavioral disorders. The purpose of the study was to see if choice-making opportunities during independent math activities resulted in positive behavior changes. In addition, Jolivette et al. (2001) studied if choice-making opportunities were less complex for teachers to implement during their rigorous academic schedules. Jolivette et al. (2001) conducted a choice-making intervention with three male students with emotional behavior disturbance. They examined the effects of choice-making on participants’ social behaviors and task engagement during mathematics. Ages of participants ranged from 6 to 10 years old. The setting was in a self-contained special education classroom.

The study incorporated a multiple baseline design across participants with a withdrawal treatment. The intervention was implemented during the first 15 minutes of each class. Each mathematics session was recorded using a VHS video camera. The steps
to teach choice-making were (a) offer two or more options, (b) prompt the individual to make a response, (c) allow for wait time to make a choice, (d) pause for response, (e) reinforce the option chosen by allowing the individual to interact with the item, and (f) if a choice had not been made, prompt the individual to make a choice by allowing them to select from the choices presented (Jolivette et al., 2001).

During the choice condition the teacher presented the participants with three mathematics sheets and prompted the participant. After the participant made an initial choice the teacher directed the participant to finish and complete the worksheet. This was repeated until all three worksheets were completed. During the no-choice-condition the teacher asked the participant to complete all three worksheets. Each math sheet consisted of 20 problems. The teacher randomly called on participants and assigned a worksheet to them in random order.

The results of the choice-making intervention showed positive behavior changes in all three participants. The participants were engaged in tasks, and disruptive behaviors and off-task behaviors greatly decreased during the choice condition. During the no-choice condition participants were not as engaged and displayed off-task behaviors at increased levels (Jolivette et al., 2001). Lastly, providing choice-making opportunities was an effective strategy and future research should focus on teachers implementing choice-making interventions during ongoing daily classroom activities and curricula routines (Jolivette et al., 2001).

Hoch, McComas, Johnson, Faranda, and Guenther (2002) investigated two concurrent choice response alternatives. Their purpose was to see if the quality of reinforcement was greater when a participant had a choice of where a peer or sibling was located. Hoch et al.
(2002) explored choice-making with three boys with autism. The participants ranged in age from 9-11 years. Sessions with the participants were conducted in separate settings (i.e., classroom setting, living room). The materials used varied for each participant (e.g., marble game, lite brite, topple, slinky, play dough).

The target behaviors were defined as the participant walking to one of the two specified playing areas following a verbal prompt. Participants had a choice of playing with a peer or sibling. Preference assessments were conducted with participants and peers; recording high and low preferred items for each. The parent or participating teacher selected 12 items, and paired them with every other item. Prior to the beginning of each session a mini preference assessment was conducted to decide which items should be used during daily sessions.

Daily sessions ranged from one to six sessions, and occurred two days per week. Prior to each session, participants were directed to play in one of two designated play areas. When the participant did not go to an area, the researcher repeated the direction using a prompt or gesture. All participants chose a play area, however they wandered and required a prompt to sit down. Participants were told to play in the specified play area and interact with a toy and peer or sibling. After a specified time, the participant was directed back to the center of the room, told to wait (i.e., 15 seconds) and prompted to play in the areas.

Procedures for the first participant included choice-making between playing with highly preferred items in a play area or a peer in another area. Procedures for the second participant included a choice between a toy in one play area and a sibling in the other play area. Procedures for the third participant included a toy placed in a play area and the
choice of a peer in another play area. Sessions were recorded by calculating the number of times the participant chose the area, divided by the number of times the participant made a choice during the session.

Results of the study showed that initially the first participant did not choose the play area where a peer was playing, but after several pairings the participant chose the areas where the item of greater reinforcement was. The second participant consistently chose the play area where a highly preferred item was regardless of a sibling’s presence. The third participant’s choice was guided by the reinforcement and was never motivated by a peer’s presence. The results of this study suggested that magnitude and quality of reinforcement can influence choice-making in individuals with autism (Hoch et al., 2002).


During baseline, when participants removed an article of clothing, staff prompted them to stop. When participants totally disrobed they were asked to put on the same outfit. When participants had a urinary accident staff members provided them with a set of clean and dry clothes that were provided by the parents. A functional behavioral assessment and interviews were conducted with related staff personal. Preferences of participants’ articles of clothing were taken into consideration for use during the intervention. The researchers hypothesized that participants disrobed and relieved themselves to meet tangible and sensory functions (Carlson et al., 2008).
The choice-making intervention consisted of providing participants with opportunities to change throughout the day. The first participant had five opportunities across the school day, and the second participant had six opportunities across the school day to choose from an article of clothing. Staff provided participants with two choice-making options (i.e., two preferred articles of clothing). When participants refused to choose they remained in their article of clothing (Carlson et al., 2008). Maintenance checks were conducted for the first participant only, since the second participant moved. Data were analyzed by recording the frequency of public disrobing and urinary inconsistency.

Results suggested both participants reduced disrobing and urinary accidents following choice-making opportunities. Data from baseline and intervention indicated that the choice-making strategy was effective in decreasing the problem behaviors participants displayed. Carlson et al. (2008) suggested that the choice-making intervention was fairly easy and effective to implement. The researchers hypothesized that it would have been better to have faded and gradually decreased choice-making opportunities for both participants.

**Choice-Making and Middle School Students**

Graff and Gibson (2003) compared hierarchies of preferred stimuli using tangible and pictorial preference assessments in individuals with developmental disabilities. They assessed items to see if they served as reinforcers. Four individuals with disabilities participated in the study. The tangible assessment used a paired-stimulus presenting each participant with eight edible items that were provided by teaching staff. During each trial, two items were selected and presented. Approach responses were identified as picking up the item and then awarding the opportunity to consume the item. During the pictorial
preference assessment two line drawings were presented and approach responses were recorded as touching one of the pictures (Graff & Gibson, 2003).

During the alternating treatment phase, participants were given a colored button with a reinforcement schedule. Participants were able to choose food items during each session and only one button was available. All participants could view the edible item that was directly behind the button. During each assessment condition, opportunities were recorded for touch and or approach of preferred items (e.g., tangible, pictorial).

For three out of the four participants, the two assessments yielded similar preference hierarchies (Graff & Gibson, 2003). The pictorial assessments were successful in identifying functional reinforcers for participants. Graff and Gibson (2003) suggested that researchers should look at fluency and picture use. Additionally, research should focus on why pictorial assessments fail to serve as functional reinforcers for some individuals with disabilities. Lastly, due to the small number of participants future studies should focus on a larger number of individuals with all disabilities to increase validity.

Cannella-Malone, DeBar, and Sigafoos (2009) assessed choice preferences of two individuals with intellectual disability in using one of three AAC devices (Augmentative and Alternative Communication). They examined AAC systems and how communicative competence increases one’s quality of life. Cannella-Malone et al. (2009) conducted research with two boys with severe intellectual disability. The study was conducted in a school that served students aged 5-21 with multiple disabilities.

The study was conducted in three phases. Phases one and two were conducted in a small room that was across from the participants’ classrooms. Participants were taught to make simple requests from preferred food items using three different augmented and
alternative communication (AAC) devices. The first AAC device was a Picture Communication Board that had six laminated picture symbols. The second device was a *Mini Message Mate* with six icons. When the picture icon was pushed on the device a prerecorded message was delivered. The third AAC device was *Cyrano Communicator*.

A multiple stimulus without replacement preference assessment was given to participants. The target behavior was choice, which was defined as the individual selecting the item and consuming it. This was presented to participants five times per session across four days. During the training phase, participants were required to request an item using the AAC device. An opportunity was awarded to the participant to select the item that corresponded with the request. If an incorrect item was selected the researcher guided the participant to the correct edible item allowing him or her to consume it.

Frequency of independent responses were recorded in the following steps: (a) retrieving the AAC device, (b) turning it on, (c) walking over to the communication partner, (d) tapping on the communication partner, and (e) activating the device. A communication partner and a graduate student assisted with this phase. Researchers provided the necessary prompts using an increased time delay. Once mastered, a least-to-most prompt hierarchy was used.

Data were collected over a five-month period with one to nine sessions conducted daily for a minimum of one session to a maximum of three. Results of the study suggested the majority of participants made significant gains throughout all sessions. The participants performed four out of six independent responses per session and reached mastery within nine sessions. Cannella-Malone et al. (2009) suggested that providing
choice-making enhances self-determination for all individuals with disabilities. They noted that future research should be conducted to examine student choice preference over time and investigate the potential for teaching complex communication skills that include AAC usage.

**Choice-Making and High School Students**

Dibley and Lim (1999) investigated the effects of providing choice-making opportunities embedded within and between routine school activities (i.e., daily), frequency of task initiation, and protests that were exhibited by one participant with an intellectual disability. Dibley and Lim (1999) conducted a study with a 15-year-old with a severe intellectual disability who displayed high levels of social inappropriateness.

The study was conducted in the participant’s classroom located within the SSP School (i.e., school for specific purposes). Two functional assessments were administered prior to the intervention: A motivation assessment scale and a functional assessment interview. After assessment results, three activities were selected for the choice-making study: meal times, toileting, and listening to music.

During baseline, staff were presented a scripted task analysis that did not allow for the participant to have a choice. A staff member gave the participant a direct imperative and waited 30 seconds to record. During intervention phases a scripted set of task analyses were adapted to allow for choice. During phase C, the same scripted task analyses were used as in the B phase of steps two and three, however step one was modified to provide choice-making between routine activities. The experimental design used was an ABABC design. A total of 21 daily opportunities were available.
Data were analyzed by looking at the task initiation of the participant and determining whether the participant interacted or consumed the item within 30 seconds. The dependent variable was the number of initiations of tasks and protests. A task initiation was scored if the participant initiated the task choosing the item being presented. Protests were scored when the participant spit or exhibited profanity within 30 seconds of the statement.

Results of the study indicated the participant increased in task initiation and decreased in protests. During opportunities where ‘no choices’ were available the participant protested between 11 and 15 times. When the participant was provided with ‘choices within’ or ‘between routines’ protests decreased to four to five times per day. The frequency of task initiations during ‘no choice’ phases were 11 to 17 times per day, but when the participant was provided with ‘choice between and within activities’ they increased by 17 to 21 times per day. The study demonstrated the importance of embedding choice-making into a student’s school day.

Dibley and Lim (1999) noted that providing choice-making opportunities to students increased task initiations and reduced protests. Choice-making needs to be included in daily routines and activities for all students with disabilities. Choice-making opportunities provide students with an array of options, empowering the individuals overall quality of life.

**Choice-Making and Adulthood**

Agran, Storey, and Krupp (2010) examined several different employment programs that served adults with disabilities. The purpose of their research was to look at these agencies and how they supported and provided choice-making opportunities to their
participants. Agran et al. (2010) conducted a study with ten adult employment agencies. These agencies provided services to various consumers depending on their participants’ needs. Nine providers from two states participated in the study. The setting of the study took place during on-site interviews with 30 participants at three different agencies.

A survey was conducted that included demographics, types of employment or job settings available to participants, and level of supports needed. In the study, supports were defined according to the American Association on Intellectual and Development Disabilities (i.e., intermittent, extensive). The survey included responses (i.e., yes or no) and open-ended questions. The statements focused on choice-making and self-determination. Questions consisted of asking participants two questions: What choices was he/she given today? What choices does he/she typically make? The staff was instructed to read the questions independently. Staff members also were instructed to read the questions and explain only when deemed necessary. When there was no response a question was skipped.

Data were analyzed and recorded from frequencies to percentages, except for the open-ended responses. A chi square analysis determined significant relationships between variables in the yes or no question format. Results of the study showed that the majority of related staff personnel wanted participants to engage in choice-making and took participants’ suggestions seriously. According to the survey, participants felt confident in the area of self-determination and were good problem solvers. The results of the survey showed that participants perceived that they had choices in their lives and were provided with opportunities to make choices.
Agran et al. (2010) emphasized that adults with intellectual disability need to be supported in the area of choice-making. They need to be taught how to make choices, to assess available choice options, and to seek supports that enable them. It is important for adults with intellectual disability to be respected and honored when making choices. Ultimately these choice-making skills lead to an increased quality of life.

Sigafoos, Roberts, Couzens, and Kerr (1993) evaluated the effectiveness of an intervention package that incorporated snack and leisure activities with choice-making and turn-taking with five young adults with multiple disabilities. The study was conducted with young adults with disabilities, ages 18-20. All of the young adults participated in a 2-hour weekly recreation program at a local vocational institute. Instruction and supports were provided by direct staff care. The setting took place at the vocational institute. Client and staff dyads were conducted weekly with participants.

Sigafoos et al. (1993) conducted a multiple baseline design. The design looked at the effects of choice-making opportunities provided by staff members. During baseline, observations occurred during leisure and snack activities to assess if there were turn-taking opportunities with participants. All staff members were trained on how to work with the participants. Four phases of training occurred: choice-making and turn-taking steps were administered to staff, mini presentation on procedures, guidelines, and a verbal explanation.

During intervention the same procedures used during baseline were used in addition to six steps for choice-making and turn-taking. The six steps consisted of offer, ask, wait, response, reinforce, and prompt. Target behaviors were defined as the number of times staff offered choice-making opportunities during a snack activity to participants. The
snack activity consisted of two or more food or beverage choices. Staff prompted participants by turning the item toward the participant. Correct target responses were defined as nodding one’s head up and down to indicate yes, pointing, reaching, and/or maintaining physical or eye contact with the item for at least 3 seconds. Following the session, the observer provided feedback to the staff.

Data were analyzed by counting the number times staff offered participants’ choice-making for at least 33% of the sessions. Results from the study suggested that staff increased the number of turn-taking and choice-making opportunities that they provided to the participants. The choice-making intervention was effective in training staff and supporting young adults with multiple disabilities. Sigafoos et al. (1993) concluded that staff who work with young adults with multiple disabilities should be taught how to provide choice and turn-taking opportunities. Results from this study showed when provided with choice opportunities the students’ daily participation increased their overall quality of life.

Tasky, Rudrud, Schulze, and Rapp (2008) evaluated the effects of choice on task engagement with individuals with traumatic brain injury. Tasky et al. (2008) conducted a study with three women with traumatic brain injury resulting from a motor vehicle accident. The interdisciplinary team who worked with the women compiled a task list for each participant, that took 10-15 minutes to complete.

Sessions were conducted in a variety of settings within the hospital and by a variety of trainers weekly in the morning. The target behavior was on-task and defined as physical contact with the object resulting in completion of the task (i.e., gathering materials, manipulation of materials, requesting assistance from staff). Momentary time
sampling procedure was used to observe the occurrence and non-occurrence of on task behavior in a given 30-minute period.

An ABAB withdrawal design was used for the task assigned and choice condition that required completion of three assigned tasks. During baseline, participants had to randomly complete three tasks (e.g., laundry, making the bed, dusting). Each participant had to complete the tasks in order, check off the task (i.e., each step completed), and give the completed list to a staff person once finished. No prompt delivery system was used, but verbal praise was delivered to participants using an intermittent schedule across all phases. During the choice condition phase, each participant had a choice in selecting three tasks from a list of nine tasks and was informed that he or she could switch the sequence at any time.

Data were gathered on behaviors that occurred when participants received the task lists. Results of this study showed that participants increased their on-task engagement when given the opportunity to choose their own tasks. Tasky et al. (2008) suggested that future research studies should look at reducing or fading the tasks list. Furthermore, the evidence supports that choice-based procedures are effective and time efficient in changing behaviors.

Manhertz (2006) studied choice-making to evaluate the major and minor life choices in adults with intellectual disability. In addition, Manhertz (2006) looked at choice awareness and how it related to lifestyle satisfaction, goal setting, and one’s quality of life. Manhertz (2006) examined 48 adults with intellectual disability. Interview sessions took place in the participants’ homes. During the training phases, participants’ sessions were conducted individually (i.e., one-on-one) with the researcher.
Manhertz (2006) conducted a group design study using choice awareness training and choice vignettes with the treatment group. Choice awareness training was delivered to participants for two sessions, and for the remaining sessions choice vignettes were used. Choice vignettes were used during 12 training sessions and lasted 25 minutes each in length. Each choice vignette had two parts (e.g., a, b) and had a clear choice or no choice answer. Sessions took place for six weeks and were implemented twice a week. The control group did not receive any choice awareness training. However, they participated in the pre and post-test phase of the study.

The design was a 2 x 2 x 2 factorial analysis of variance design with repeated measures on the final factor, with two types of treatment (i.e., control, training), two levels of intellectual disability (i.e., mild, moderate), and two choice domains (e.g., major and minor life choices). Significant differences were found in the moderate level of intellectual disability for major choices only (Manhertz, 2006). After treatment participants at the moderate level of intellectual disability had a higher level of choice experiences in major issues compared to the participants in the control group. A trend in the data suggested that choice awareness increased choice experiences with the participants benefiting from choice awareness training. Manhertz (2006) indicated that future research should be conducted with individuals in major life choice situations versus minor life situations (e.g., when to eat, bedtime). These findings warrant further research and practice in the area of choice awareness to increase individuals’ choice experiences.

Parsons, Harper, Jensen, and Reid (1997) evaluated the varying levels of choice-making skills with older students with severe disabilities. Parsons et al. (1997) examined
seven participants in a senior program for persons with severe disabilities. The setting took place at a residential facility that served people with severe disabilities.

The target behavior was choosing a leisure item or picture when presented with two different items. Choice-making was defined as touching, picking, or pointing to the desired item within 10 seconds. A minimum of 20 trials was presented to participants before criteria of the preference could be obtained. Two support staff identified leisure activities for each participant. Leisure activities included various choices (e.g., TV, Connect 4, magazines, Trouble game, Frisbee, Paddle ball).

Procedures included assessing each participant by pairing objects (i.e., a preferred leisure activity, non-preferred activity). Sessions were conducted in areas of the home where the participant normally engaged in these activities with four choice-making presentation trials. During each trial two objects were presented and the participant was prompted to select one of the items. The experimenter pointed to each leisure object as it was presented and named the item. The participant had 10 seconds to choose an item. Once chosen, the participant had one minute to engage in the activity. After one-minute, a second trial item was presented. When the participant displayed preference of the leisure activity an additional assessment was given using pictures. Reliability checks were conducted during observation sessions and during object and picture sessions to ensure choice validation.

Participants indicated preference during the object presentation phase when compared to the picture presentation phase. Parsons et al. (1997) emphasized the importance of individuals’ level of choice-making awareness. The authors insinuated that these skills are essential in providing choice-making opportunities to individuals with severe
disabilities. Research should further focus on the choice-making evaluation process in all individuals with disabilities. Lastly, Parsons et al. (1997) indicated that individuals with disabilities have the right to choose and should be given the opportunity.

Salmento and Bambara (2000) investigated the knowledge of staff members on choice awareness who worked with individuals with severe and profound disabilities. Researchers studied the effects of providing multiple single stimulus choice opportunities embedded within daily routines. In addition, they assessed staff on how they generalized choice-making opportunities with participants in a variety of settings and routines.

Salmento and Bambara (2000) conducted a study with four support staff members and four participants with profound intellectual disability and physical disabilities. Staff members assisted participants on a daily basis in the home. Participants were chosen based on their abilities to express preference through idiosyncratic response modes (i.e., body movement, smile, facial expressions). Staff trainings occurred in a meeting room, and instruction occurred in the participants’ bedrooms during naturally occurring routines.

Baseline consisted of observations one to four times a week during the participants’ grooming and dressing routines. A multiple-baseline design across participants was conducted with staff members/adults to evaluate the number of choice opportunities that were presented to participants. The intervention consisted of a consultative meeting, in vivo training, and feedback. Researchers provided staff with awareness on why and how to present choice opportunities, how to identify routines, and how to know if the participant accepted or rejected an item. Consultation consisted of informing staff of the importance of choice. Choice opportunities were introduced to staff on how to provide choice for dressing and grooming (i.e., choice between two items, what to wear, what do
you prefer?). During the in vivo training, staff were taught how to present choice opportunities, and how to respond to the participants. They were taught using a choice diversity sequence. During training (i.e., third component), staff members provided feedback on the performance (i.e., praise). Feedback was provided on the total number of choice opportunities presented and correctly implemented in the sequence. Staff members collected data during choice opportunities provided. Response definitions were defined as (a) approach, a voluntary movement for at least three to five seconds once the item was presented, and (b) rejection was a body movement that was turned away within five seconds of the item being presented.

Results of the study showed that when participants were presented with choice opportunities, choice abilities increased. When given choices within their daily routines by staff members they were more willing to make choice responses.

Salmento and Bambara (2000) suggested that staff members should deliver choice opportunities within daily routines and on a consistent basis.

Watanabe and Sturmey (2003) investigated the effects of choice-making opportunities that were embedded within activity schedules, and contingent praise with three adults with autism. The participants were three men with autism who received services in an adult service program. Ages of the participants ranged from 22-40 years old. All three participants displayed inappropriate behaviors (e.g., noises, self stimulatory behaviors, self-talk).

Participants partook in the following tasks: math drills, reading activities, job searches, hygiene practices, and handwriting. Twenty-three sessions were conducted, and each session consisted of three tasks. Momentary time sampling (i.e., one minute) was
used to record on-task behaviors. Thirty-minute observations were conducted at 9:30 a.m., 10:15 a.m., and 11:05 a.m. A multiple baseline design across participants was conducted.

During baseline (i.e., no choice condition) a morning schedule was presented on the blackboard and participants were given three tasks. Participants were expected to complete tasks within 40 minutes and were given 5-10 minute breaks between each task. Participants were directed when to take a break and when to start tasks. During the choice condition, the experimenter allowed the participants to make their schedules and the participants were given nine choice activities. A schedule sheet was provided to the participants and they would write the names of the desired task. On-task behavior was recorded as looking at the activity, eyes moving, and writing on the paper or erasing. Off-task was recorded as the participant not looking at the assigned task, doodling, and engaging in inappropriate behavior. On-task behavior was randomly selected each day of the study and recorded by the observer as a plus for on-task behavior and a minus for off-task behavior.

Results of this study suggested the choice intervention was effective in increasing on-task behaviors for all three participants in the study. Watanabe and Sturmey (2003) suggested that future researchers replicate this study using the same schedule that they used throughout the conditions. Future exploration could broaden and evaluate the maladaptive behaviors and productivity measures in individuals with autism.

Neely-Barnes, Marcenko, and Weber (2008) researched choice and quality of life to see if choice positively correlated with quality of life measures, and if individuals with disabilities living in smaller settings experienced a better quality of life. Washington State conducted an annual survey called the National Core Indicator (NCI). The NCI
survey was administered to individuals with disabilities, their family members, and service providers. The survey questions addressed (a) demographics, (b) residence, (c) diagnosis, (d) health, (e) services, (f) self-determination, and (g) behavior supports. The survey included questions about activities in the home and work setting, friends, rights, and family members (Neely-Barnes et al., 2008). A random sample of 224 respondents were chosen for the study.

Results showed that the level of disability affected individuals by their choices of living arrangements. Individuals with disabilities who were able to answer questions for themselves experienced a greater respect for rights and social inclusion. Individuals with disabilities who lived in smaller settings also received greater respect from their families, and their rights were acknowledged more frequently than those individuals who could not answer for themselves. Individuals with severe disabilities often lived in larger settings where their quality of life was not experienced to the fullest. Their barriers included less choice and less participation in activities. They often were unable to form significant relationships and their choices were not respected.

Based on the results of this study questions were raised as to whether individuals with disabilities who were non-verbal had adequate opportunities to make choices in their lives. All individuals with disabilities need to be provided with opportunities in everyday life to be successful. However, one individual’s definition of quality of life may not be suitable for another. Individuals with disabilities do not always independently make choices. Choices are sometimes made for these individuals due to the degree of the disability. Providing choice-making opportunities empowers individuals with disabilities and the potential to improve one’s quality of life.
Summary

Previous research has demonstrated the importance of developing choice-making skills and abilities to evaluate outcomes among individuals with disabilities (Dibley & Lim, 1999; Hoffman, 2003). Few studies have been conducted with individuals with severe intellectual disability; researchers primarily focus on individuals’ food and activity choices (Sigafoos & Dempsey, 1992). Additionally, researchers have used preference and presentation formats to assess choice-making skills in individuals with disabilities (Parsons et al., 1997). Researchers have primarily targeted students with disabilities at the elementary and middle school levels, but few choice studies have been conducted with high school aged students with mild and moderate intellectual disability.

Based on the review of literature, choice-making has been taught to individuals with disabilities through a variety of methods. Researchers have emphasized that individuals with mild and moderate intellectual disability need to be aware of their choice-making opportunities (Parsons et al., 1997). Studies have suggested the importance of providing individuals with intellectual disability practice in the area of choice awareness (Manhertz, 2006). Researchers noted that individuals with intellectual disability should be given opportunities to practice choice-making daily (Cannella & Malone, 2009; Sigafoos et al., 1993).

This literature review suggests that choice-making is an essential skill for all individuals with disabilities to possess (Palmer, 2010). Previous research has targeted teaching choice awareness to adults with intellectual disability (Manhertz, 2006). This proposed study will explore choice training with high school age students with intellectual disability. The purpose of this study was to determine if high school students
with intellectual disability, when given choice training, would improve their choice selections. This study has been designed to investigate the daily life choices and choice-making options that high school age students are given everyday. The results of this study can add to the choice-making body of literature. Lastly, this study will explore the maintenance of choice-making skills in high school age students with intellectual disability.
CHAPTER 3

METHODOLOGY

Although choice-making is a lifelong process, students with intellectual disability need opportunities to engage in these tasks and to learn about the natural consequences of choices (Hoffman & Field, 1995). When instruction in choice-making is provided in school, students with intellectual disability have increased opportunities to become empowered, confident, and independent (Van Tubbergen, Omichinsk, & Warschausky, 2007). In the end, choice-making training provides students with the tools to have more control over their own lives.

The ability to make a choice is a critical skill for individuals with intellectual disability to possess and carry into adulthood (Hoffman, 2003). Becoming skilled in choice-making and accepting the consequences of one’s choices are key as students with intellectual disability transition into middle school, where rules (e.g., academically and socially) change and become more complex (Field, Sarver, & Shaw, 2003; Treece, Gregory, Ayres, & Mendis, 1999). Because the goal of all instruction is to create contributing members of society, then everyone (e.g., teachers, parents, staff) must recognize that when students with intellectual disability are provided the opportunity to make choices throughout their time in school (e.g., elementary, middle, high school), graduation rates, postsecondary success, employment outcomes, and overall life success increases (Trainor, 2007; Treece et al., 1999).
The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. This study involved teaching high school age students with intellectual disability how to identify choices. This chapter presents the research methodology that was used. Specifically, research questions, participants, setting, instrumentation, materials, design, procedures, and treatment of data are presented.

**Research Questions**

The following research questions were examined:

1. Will choice-making training be effective in teaching students with intellectual disability to identify correct choices?
   
   It was predicted that students with intellectual disability would identify correct choices when presented with choice-making opportunities/alternatives.

2. Will students with intellectual disability be effective in maintaining choice-making skills?
   
   It was predicted that students with intellectual disability when presented with choice-making training would maintain choice opportunities.

3. What was the special education teacher’s perception of the implementation of the choice-making study?
   
   It was predicted that the special education teacher would recognize the benefits of teaching choice-making to high school students with intellectual disability.
Participants

The students selected to participate in this study were students who attended a high school in a large urban school district in the Southwestern United States. Students’ ages ranged from 14-21 years old. See Table 1 for student demographics. Participation in the study was based on receiving informed assent forms signed by the students and consent forms signed by parents and adult participants (Appendix A, Appendix B, and Appendix C).

Students

Students were chosen based on administrators and staff identifying students as receiving special education services under the primary code of mental retardation also known as intellectual disability. Students were identified as having an intellectual disability and received special education services under the Individuals with Disabilities Education Improvement Act (2004) in a self-contained high school special education program.

In order to participate in the study, students met the following criteria: (a) a diagnosis of mild to moderate mental retardation according to the Nevada Administrative Code (2011) possessing an intellectual capacity that is significantly below average with limitations in two or more adaptive skill areas, (a) respond to a prompt or cue within 5 seconds, (b) attend to task for one minute, and (c) understand receptive (i.e., able to identify the picture that is being presented) and expressive vocabulary (i.e., verbally state or point to the item when prompted). In addition to the above skills students had to pass a Screening Test (Appendix D).
Table 1

*Participant Demographics Questionnaire*

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>P5</th>
<th>P6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>17</td>
<td>16</td>
<td>17</td>
<td>16</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td><strong>Disability Category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild ID (1)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Moderate ID (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate ID/Multiple (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate ID/Autism (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td>HI</td>
<td>WH</td>
<td>WH</td>
<td>WH</td>
<td>WH</td>
<td>AS</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>UG</td>
</tr>
</tbody>
</table>

Note: F= Female, M= Male HI= Hispanic, Wh= White (non-hispanic), AS= Asian, ID= Intellectual Disability

In order to participate in the study, students met the following criteria: (a) a diagnosis of mild to moderate mental retardation according to the Nevada Administrative Code (2011) possessing an intellectual capacity that is significantly below average with limitations in two or more adaptive skill areas, (a) respond to a prompt or cue within 5 seconds, (b) attend to task for one minute, and (c) understand receptive (i.e., able to identify the picture that is being presented) and expressive vocabulary (i.e., verbally state or point to the item when prompted). In addition to the above skills students had to pass a *Screening Test* (Appendix D).
Parents

The parents of the students were asked to complete a *Student Demographic Questionnaire* (Appendix E) that was sent home with students in a large white envelope. Parents were given two-weeks to return the questionnaire. When the questionnaire was not returned after the first week, a follow-up letter was sent home. A total of 12 questionnaires were sent out to parents, students, and potential adult participants. All of the questionnaires were returned giving consent to participate in the study. The following week one of the potential participants parents phoned in stating that they did not want their student to participate in the study, and another student was found ineligible to participate due to excessive absences. Out of the 10 remaining potential students, 6 students were found eligible in meeting criteria to participate in the choice-making training intervention.

Teacher

One special education teacher participated in the study. The special education teacher was assigned to teach students with intellectual disability in a self-contained special education setting. The special education teacher conducted choice-making training sessions. Additionally, the special education teacher participated in two one-on-one 30-minute trainings so the teacher knew how to implement choice-making training with students.

Research Assistant

The research assistant assisted with data collection, and interobserver reliability. The research assistant participated in one-training session that involved learning how to collect data during the choice-making training scenarios.
Setting

The study took place in a high school classroom located in an urban Southwestern school district in the United States. The school district serves over 300,000 students and has over 33,000 employees. The large district provides special education services for students 3-to-21 years of age. The high school serves students in grades 9-12 who attend general and special education classes. This school serves students who are diverse in ethnicities, languages, and family backgrounds.

The study was conducted in one self-contained classroom for students with intellectual disability. The classroom was assigned a licensed teacher and an instructional assistant. Students had access to related service personnel (e.g., school psychologist, speech language pathologist, occupational therapist, physical therapist, adaptive physical education) and received services in a self-contained setting at least 70% of the school day. One self-contained special education classroom was used in this study. The classroom used in the study was about 15’ x 15’ in size. The classroom had three whiteboards, an Elmo® presenter, an overhead projector, and a classroom sound system. There were 12 desks horizontally aligned in rows of three. There were two desks one for the teacher and the assistant, two staff computers, and three student computers.

Instrumentation

Five instruments were used to assess students’ choice-making skills. Students completed the following instruments: (a) Screening Test (Appendix D), (b) Choice-Making Scenario Pre and Posttest (Appendix F and G), (c) Choice-Making Scenario
Baseline Probes (Appendix H) and (d) Choice-Making Scenario Maintenance Probes (Appendix I).

Screening Test

Students were administered a Screening Test prior to the implementation of the intervention (Appendix D). The Screening Test consisted of five still picture photographs of (a) a cell phone, (b) a telephone, (c) a computer, (d) a microwave, and (e) an alarm clock. Students identified (i.e., verbally stated) items by name and stated the function in order to participate in the study. The purpose of the screening test was for students to identify the picture of the item and recognize the items function. An example of an acceptable response for a cell phone was (a) “That is a picture of a phone,” or “That is an iPhone” and (b) “You can call a friend on a phone,” or “I can call my mom”. Student responses could vary as long as the student could identify components of the item and state the functions. The Screening Test determined student participation in the study. Students had to meet 80% criteria in order to participate in the study.

Choice-Making Scenario Pre and Posttest

The special education teacher provided students with the Choice-Making Scenario Pre and Posttest (Appendix F and Appendix G). The choice-making scenario required student-generated choice responses. The Choice-Making Scenario Pre and Posttest consisted of two choice-making scenarios. For example, a student was presented with the following choice-making scenario, “You have to apply for a job. You need to work to make money and some of your friends have jobs. You really want to work!”

Next, the teacher asked the student, “Can you tell me what choice(s) you have?” Once the student had identified an initial choice the teacher provided an additional prompt,
“Can you tell me another choice that you have?” The student identified up to five choices, correct or incorrect (i.e., each correct choice identified was worth 1 point). A correct response was scored if the student response was, “I can apply at the local grocery store near my house,” or “I could work at Target.” Students were not expected to state the exact sample response. The students were expected to state something related to the scenario (e.g., in the parameters). An incorrect response was scored if the student responded to something unrelated to the scenario. For example, “I like to hang out with my friends and watch movies.” Choice-making scenarios were evaluated using a Choice-Making Scenario Scoring Rubric (see Appendix J). The Choice-Making Scenario Scoring Rubric contained the five following responses: (a) student identified an initial choice, (b) student identified a second choice, (c) student identified a third choice, (d) student identified a fourth choice, and (e) student identified a fifth choice. The student received 1-5 points for each correct choice identified. A maximum of 5 total points could be earned for the choice-making scenario.

**Choice-Making Scenario Maintenance Probes**

Students were given two Choice-Making Scenario Maintenance Probes (Appendix I) at one-week post-treatment and at two-weeks post-treatment. A special education teacher administered the measure in the special education classroom. For example, the student was provided with one choice-making scenario and evaluated on his or her choice-making ability. The student would generate a response. The special education teacher would record student responses using the Choice-Making Scenario Scoring Rubric (Appendix J).
Two weeks after intervention, students were presented with a choice-making scenario and assessed using the *Choice-Making Scenario Maintenance Probes* (Appendix I). The special education teacher assessed students in the special education classroom. Each student was given a maintenance probe with five opportunities to identify a choice (i.e., correct or incorrect choice). The teacher asked the student, “Can you tell me what choice(s) you have? Student responses were recorded using the *Choice-Making Scenario Scoring Rubric* (Appendix J).

A checklist was used to assess if the teacher followed the steps outlined in the *Instructions and Script for Choice-Making Training* (Appendix K). The student investigator and doctoral student were responsible for ensuring and collecting the procedural fidelity data. Procedural fidelity data were gathered on the following: (a) ensure the recorder button is pushed and the training is being recorded, (b) tells the student what he/she will be engaging in (i.e., session), (c) introduces choice-making training, (d) introduces choice-making scenarios, (e) read/reread the choice-making scenario, (f) facilitates student response by prompting/cueing student with questions, (g) allows student to identify five possible choices, and (h) scribes/records student responses.

**Materials**

This section provides a detailed description of the instructional materials used in the study. The equipment that was used is also described.
Mini Whiteboard

A 12x14 whiteboard was used to brainstorm with students during the intervention. Students brainstormed along with teacher with guided assistance and prompting. The teacher scribed student responses on the mini whiteboard.

Still Picture Photographs

The still picture photograph library contained over 200 still picture photographs (i.e., chicken fingers, *Wii* remote, girl texting). Still picture photograph images were captured using a digital camera. The photographs were images of the choice-making options from which students could select from during the guided prompt scenarios (i.e., student sending a text message, sending an email, a student updating his or her Facebook status). Still picture color photographs were “2 x 2” in size and printed on cardstock. On the back of each card was an explanation of the photo on the front of the card (e.g., *a picture of dog food, a picture of a girl text messaging*). Scenarios that were relative to a male or female had alternate pictures that were gender specific, and the pictures were of the same item (i.e., deodorant, pants, razor, etc.). For example, when a picture of deodorant was displayed, a photo of a female using a female deodorant was shown.

Video Camera

A *Samsung* camera was used to record student choices and to evaluate reliability. Recordings were conducted throughout the choice-making training.

Portable File Box

All materials were kept in a portable file box for easy access. For each choice-making training scenario a portable file box was used and labeled as followed (a) *Instruction and Script for Choice-Making Training* (Appendix K), (b) *Choice-Making*
Training Scenarios (Appendix L), (c) still-picture photograph pictures related/unrelated to the choice-making scenario (e.g., chicken fingers, Wii remote), and (d) Choice-Making Scenario Scoring Rubric (Appendix J). Each session was color coded, labeled, and placed in a file folder.

Choice-Making Training Scenarios

The sessions were delivered during the Choice-Making Training Scenarios (Appendix L). The teacher delivered choice-making training following the Instructions and Script for Choice-Making Training (Appendix K). The teacher introduced students to choice-making training instruction. Choice-Making Training Scenarios (Appendix L) embedded real life situations that teenagers face daily. The readability level for each scenario in the study was between the fifth and sixth grade level according to the Fry’s Graph and Readability Tools (Byline Media, 2013). In this study, real life choice situations were (a) making a choice on how to tell a friend that you are going to attend his or her birthday party, (b) making a choice on what and how you will spend your money, and (c) making a choice on what to wear to a job interview. Choice-making training topics included (a) health, (b) recreation, (c) hygiene, and (d) food. The script detailed (a) the advanced organizer, (b) describe and model, (c) guided practice, (d) independent practice with verbal prompts, (e) feedback, and (f) sample dialogue. The topics were selected because high school students face difficulties making choices in these areas as they transition into adulthood (Wehman, 2006). The student recognized a choice by pointing, verbally stating and identifying an alternative choice. The student needed the skills to express what a choice was (e.g., girl text-messaging). Data were collected on
student choice-making during pretest, baseline, intervention, posttest, and maintenance of choice-making scenarios.

**Design**

This study used a multiple probe design across subjects with one replication (Barlow, Nock, & Hersen, 2009; Horner & Baer, 1978). The design was used to evaluate choice-making made by high school age students with intellectual disability. The design consisted of two triads of students.

**Baseline Condition**

A multiple probe design was implemented once the pretest had been administered. All students received *Choice-Making Scenario Baseline Probes* (see Appendix H). The baseline condition consisted of a choice-making scenario administered over three sessions to each student until a stable trend had been established. Once stable baselines were observed for two participants, (i.e., one from each triad) the intervention phases began with the two participants. A participant from the first triad was identified as Participant 1, and a participant from the second triad was identified as Participant 4.

**Intervention Condition**

Participants 1 and 4 were the first to start the *Choice-Making Training Scenarios* (Appendix L). The teacher followed the *Instructions and Script for Choice-Making Training* (Appendix K). There were 10 *Choice-Making Training Scenarios* (Appendix L) that included (a) describe and model character scenarios, (b) guided practice choice-making scenarios, and (c) independent practice choice-making scenarios.
Maintenance Probe

A Choice Scenario Maintenance Probe (Appendix I) was administered to each student one week after intervention. An additional Choice Scenario Maintenance Probe (Appendix I) was administered to each student two weeks after intervention. These two maintenance probes were conducted by the special education teacher in the special education classroom. See Figure 1 for a sample outline of the choice-making study.
Figure 1. Choice-Making Training Scenario Breakdown

<table>
<thead>
<tr>
<th>Pre-Session 1</th>
<th>Check for parental agreements, and begin Screening Test: All Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>Participant 1-6: Choice Scenario Pretest</td>
</tr>
<tr>
<td>Session 5</td>
<td>Participant 1/4: Choice Scenario Lesson 1 (first ones with most stable baseline)</td>
</tr>
<tr>
<td>Session 6</td>
<td>Participant 1/4: Choice Scenario Lesson 2</td>
</tr>
<tr>
<td>Session 7</td>
<td>Participant 1/4: Choice Scenario Lesson 3</td>
</tr>
<tr>
<td>Session 8</td>
<td>Participant 1/4: Posttest</td>
</tr>
<tr>
<td></td>
<td>Participant 2: Baseline Probe (Participant 1, met 80% criteria)</td>
</tr>
<tr>
<td></td>
<td>Participant 3: Baseline Probe</td>
</tr>
<tr>
<td></td>
<td>Participant 5: Baseline Probe (Participant 4, met 80% criteria)</td>
</tr>
<tr>
<td></td>
<td>Participant 6: Baseline Probe</td>
</tr>
<tr>
<td>Session 9</td>
<td>Participant 2/5: Choice Scenario Lesson 1</td>
</tr>
<tr>
<td>Session 10</td>
<td>Participant 2/5: Choice Scenario Lesson 2</td>
</tr>
<tr>
<td>Session 11</td>
<td>Participant 2/5: Choice Scenario Lesson 3</td>
</tr>
<tr>
<td>Session 12</td>
<td>Participant 2/5: Posttest</td>
</tr>
<tr>
<td></td>
<td>Participant 3: Baseline Probe (Participant 2 met 80% criteria)</td>
</tr>
<tr>
<td></td>
<td>Participant 6: Baseline Probe (Participant 5 met 80% criteria)</td>
</tr>
<tr>
<td>Session 13</td>
<td>Participant 3/6: Choice Scenario Lesson 1</td>
</tr>
<tr>
<td>Session 14</td>
<td>Participant 3/6: Choice Scenario Lesson 2</td>
</tr>
<tr>
<td>Session 15</td>
<td>Participant 1/4: Maintenance Measure 1</td>
</tr>
<tr>
<td></td>
<td>Participant 3/6: Choice Scenario Lesson 3</td>
</tr>
<tr>
<td>Session 16</td>
<td>Participant 3/6: Posttest</td>
</tr>
<tr>
<td>Session 19</td>
<td>Participant 2/5: Maintenance Measure I</td>
</tr>
<tr>
<td>Session 22</td>
<td>Participant 1/4: Maintenance Measure II</td>
</tr>
<tr>
<td>Session 23</td>
<td>Participant 3/6: Maintenance Measure I</td>
</tr>
<tr>
<td>Session 26</td>
<td>Participant 2/5: Maintenance Measure II</td>
</tr>
<tr>
<td>Session 30</td>
<td>Participant 3/6: Maintenance Measure II</td>
</tr>
</tbody>
</table>
Procedures

This section provides a description of the procedures that were followed in the study. There were four phases that included (a) preparation for study, (b) pretest and baseline, (c) intervention and posttest, and (d) maintenance.

Phase One: Preparation for study

Research approval and consent. Upon receipt of approval, the participating school was contacted and the appropriate approvals as required by the school district were obtained (Appendix N). Consent and assent forms were distributed and collected (Appendix A, Appendix B, and Appendix C).

Teacher Training. The special education teacher was taught how to deliver the Choice-Making Training Scenarios (Appendix L). Training included how to (a) utilize real life scenarios, (b) conduct choice brainstorming, and (c) evoke student responses. The special education teacher was trained prior to the intervention to guarantee the intervention was properly implemented. Prior to intervention, the special education teacher received two one-on-one 30-minute sessions. She was trained during her scheduled teacher-planning period. Training consisted of instructing the teacher on how to introduce the choice-making scenarios using the Instructions and Script for Choice-Making Training (Appendix K). During, the first initial 30-minute session the teacher was trained on how to deliver choice-making training scenarios. During the second 30-minute session the teacher was trained on how to score independent practice choice-making scenarios using the Choice-Making Scenario Scoring Rubric (Appendix J). The special education teacher was instructed and trained on how to deliver choice-making scenarios to participants during the maintenance condition.
Phase Two: Pretest and Baseline

The Choice-Making Scenario Pretest (Appendix F) was administered to participants. The pretest consisted of two choice-making scenarios delivered by the special education teacher to each participant independently. All participants received five opportunities to identify a correct choice for each choice-making scenario. Responses were scored and evaluated using the Choice-Making Scenario Scoring Rubric (Appendix J).

A Choice-Making Scenario Baseline Probe (Appendix H) was administered to participants for a minimum of three sessions until a stable trend was observed using the Choice-Making Scenario Scoring Rubric (Appendix J). Baseline probes consisted of 10 choice-making scenarios. The special education teacher in the special education classroom delivered the Choice-Making Scenario Baseline Probe (Appendix H).

Phase Three: Intervention

After three days of baseline probes were administered, and stability was observed, choice-making training was implemented (Appendix L). The daily choice-making sessions were delivered following the Instructions and Script for Choice-Making Training (Appendix K). The choice-making training scenarios were designed to increase choice awareness in students with intellectual disability. Additionally, to expose students to real life choices options they have to make in everyday life.

Advanced organizer. Choice-making training scenarios were conducted daily and lasted between 10-15 minutes utilizing Choice-Making Training Scenarios (Appendix L). Choice-making training was conducted one on one with each participant. The teacher used an advanced organizer by discussing what was to take place during the training session. During the advanced organizer, the special education teacher introduced the
choice-making session, introduced the topic of the session, and reviewed the previous day’s session.

**Components of choice-making training.** The teacher introduced one component of choice-making training during describe and model. Choice-making scenarios were presented in three parts. First, the participant was presented with a scenario about a character that had made a choice implementing the strategy, describe and model. The choice-making scenario allowed for the participant to brainstorm and discover choice-making options and alternatives. During part two, a new scenario was introduced using the strategy, guided practice. This scenario was relevant to the participant, allowing him or her to make choices with the use of still picture color photographs. During part three of independent practice, the same scenario from guided practice was reintroduced to the participant. This scenario allowed the participant to generate a choice independently with verbal prompts. Delivery of choice-making scenarios is explained in detail in the following paragraphs.

**Describe and model.** First, a *choice-making scenario* was read aloud (Appendix L) to the participant using the describe and model strategy. The teacher then presented the choice that the character made. For example, participants were presented with the following scenario: “Megan was invited to a birthday party on Friday. She wants to go!” The teacher used questions to prompt a student and to evoke discussion of choice alternatives that the character could have made in the scenario. The teacher followed the *Instructions and Script for Choice-Making Training* (Appendix K) to guide choice-making discussion and encourage brainstorming of alternative choices. The teacher asked the participant, (a) What choice did he/she make? and (b) What other choices could
he/she make? The teacher encouraged the participant to generate his or her own responses. For example, the participant could generate choice alternatives such as what choice of transportation, choice of an article of clothing, or food preference. The teacher and student brainstormed choice alternatives in order for the participant to learn about the choices that he or she is confronted with daily. The scenarios summarized (a) a choice that a character made, (b) real life situations that teenagers face on a daily basis, and (c) choice alternatives or choice options that the teenager could have made.

**Guided practice.** During guided practice, the teacher introduced a supplementary choice-making scenario, during Choice-Making Training Scenarios (Appendix L). The participant was presented with a real life scenario/situation in which he or she has a choice. The scenarios were two to four sentences in length and contained already generated choice alternative/options. The scenario required students to identify correct choices. The scenario was read aloud and still photographs were introduced and displayed to the participant (i.e., 5 still photographs related to the scenario, 5 distracters unrelated to the scenario). During guided practice the participant was given corrective feedback. For example, the participant was presented with the following scenario, “You are invited to a birthday party this Friday. You have to tell your friend that you want to go to his/her party.” Still picture photograph examples included (a) texting, (b) chicken fingers and fries, (c) making a phone call, (d) one taco, (e) young lady drinking water, (f) sending a email on the computer, (g) writing a letter (h) young boy skateboarding, (i) girl/boy sending a message to a friend on Facebook, and (j) young lady playing a video game. For each scenario, the teacher read aloud the choice-making scenario. The teacher provided a brief description of each still picture photo (i.e., this is a picture of someone
text-messaging, this is someone sending a message on Facebook). Following the description, the teacher reread the scenario.

Next, the teacher prompted the participant by discussing whether or not the still picture choice (i.e., photograph) would work. For example, after presenting the birthday scenario and following the steps above, the teacher pointed to the first picture stating, “Can you tell me if this choice would work? Yes or no?” The teacher waited for the participant to respond and then pointed to the still picture photograph stating, “Why would this choice work or not work? The teacher provided wait time (i.e., two seconds for student response). The teacher followed this question and answer format for each of the 10 still picture photographs.

**Independent practice.** During the independent practice, the special education teacher presented the same scenario that was used during guided practice. During independent practice the participants received positive feedback. For example, the participant was presented with the following scenario, “You are invited to a birthday party this Friday. You have to tell your friend that you want to go to his/her party!” The teacher asked the participant, “Can you tell me what choice(s) you have?” The teacher provided the participant with five opportunities to make a choice (i.e., correct/ or incorrect responses related to the scenario).

The teacher utilized the *Choice-Making Scenario Scoring Rubric* (Appendix J) to score the independent practice participant responses. The rubric contained five questions and five responses. The following were used in evaluation: (a) student identified an initial choice, (b) student identified a second choice, (c) student identified a third choice, (d) student identified a fourth choice, and (e) student identified a fifth choice. A participant
received a score of 1 point for identifying a correct choice related to the scenario and an additional point for each correct choice identified (i.e., a total of 5 points for be earned for each choice-making scenario). The participant received 0 points for identifying an incorrect choice or for no response. Choice-making training scenarios with measurement lasted between 10-15 minutes in length. See Table 2 for a sample of choice-making training topics.

Table 2

Choice-Making Training Scenario Topics

<table>
<thead>
<tr>
<th>Choice-Making Training Scenario Topics</th>
<th>Instructional Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday party</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>Ride to work</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>Feeling sick</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>Weekend plans</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>What to wear</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>School dance</td>
<td>10-15 minutes</td>
</tr>
</tbody>
</table>

Phase Four: Posttest, and Maintenance

Phase four of the study consisted of a posttest and maintenance probes. Phase four was conducted over three weeks. During this phase the special education teacher was responsible for administering these assessments.

Posttest. Following intervention, the special education teacher administered the Choice-Making Scenario Posttest (Appendix G). The posttest was administered to participants individually and consisted of two choice-making scenarios. Participants had
five opportunities to identify a correct choice related to the choice-making scenario. Responses were scored and evaluated using the *Choice-Making Scenario Scoring Rubric* (Appendix J).

**Maintenance.** One-week post intervention, the special education teacher administered one maintenance probe to individual participants. This occurred in the special education classroom. The teacher provided individual participants with one choice-making scenario and evaluated their choice-making abilities using the *Choice-Making Scenario Scoring Rubric* (Appendix J). Student participation in the *Choice-Making Scenario Maintenance Probe* (Appendix I) was done independently by a participant generated response. First, the teacher read the scenario to the participant. Next, the teacher asked, “Can you tell me what choice(s) you have?” The participant had five opportunities to identify a correct choice related to the scenario. The special education teacher used a rubric to record student responses using the *Choice-Making Scenario Scoring Rubric* (Appendix J).

Two-weeks post intervention each participant was presented with one choice-making scenario using the *Choice-Making Scenario Maintenance Probe* (Appendix I). This measure was given two weeks post intervention. The *Choice-Making Scenario Maintenance Probe* (Appendix I) was administered to each participant by the special education teacher. The teacher read the scenario to the participant. Next, the teacher asked, “Can you tell me what choice(s) you have?” The participant had five opportunities to identify a correct/incorrect choice. Participant responses were recorded using the *Choice-Making Scenario Scoring Rubric* (Appendix J).
Reliability Measure

Interobserver Agreement for Student Measures

Interobserver agreement (IOA) data were collected for all observation sessions during the study to ensure the teacher followed the correct steps in implementing the choice-making intervention (i.e., baseline probes, intervention probes, maintenance, pretest, and posttest probes). The student investigator was the initial person responsible for data collection. The research assistant served as the secondary observer in the study. All data were reviewed weekly at an agreed upon time and date. Agreement data were calculated by \[
\frac{\text{agreements}}{\text{agreements plus disagreements}} \times 100 = \% \text{ of agreement}\].

Procedural Reliability of Treatment

The student investigator and the research assistant recorded procedural integrity of treatment or fidelity as either a plus or a minus when observing teacher delivery of choice-making scenarios. A Procedural Fidelity Checklist (Appendix M) was used to assess if the teacher followed the steps during choice-making training. Agreement data were calculated by \[
\frac{\text{agreements}}{\text{agreements plus disagreements}} \times 100 = \% \text{ of agreement}\]. See the Procedural Fidelity Checklist (Appendix M).

Validity Measures

Social validity measures were obtained to provide the student investigator with information regarding the choice-making intervention. The special education teacher completed a Social Validity Measure (Appendix O). It was used to assess the teacher’s perception of choice-making in students with intellectual disability and the overall efficacy of the intervention.
Treatment of Data

A visual analysis was used to determine the effectiveness of the intervention. Data were analyzed to answer the following questions:

Research Question 1: Will choice-making training be effective in teaching students with intellectual disability to identify correct choices?

Analysis: Baseline probes and intervention probes were entered into Excel and a line graph was created. Visual analysis was used to evaluate level, trend, and variability. Additionally, the percentage of non-overlapping data (PND) was calculated as a measure of intervention effect. To evaluate level, mean scores from baseline data and intervention data were evaluated. To evaluate trend, participants’ performance data was observed to see if it was ascending, descending, or remaining stable in each condition. Comparison of pre and posttest scores, and SD scores for each participant were evaluated. These analyses were conducted for each participant.

Research Question 2: Will students with intellectual disability be effective in maintaining choice-making skills?

Analysis: Maintenance and retention of choice-making training were assessed using the Choice-Making Scenario Baseline Probe, and Choice-Making Scenario Maintenance Probe (Appendix I). A comparison of pre-intervention data and maintenance data was conducted.

Research Question 3: What was the special education teacher’s perception of the implementation of the choice-making study?

Analysis: Perception of special education teacher views on the choice-making training was assessed using the Social Validity Measure (Appendix O).
CHAPTER 4
RESULTS

Choice-making instruction aids students’ with intellectual disability in development of self-determination. Students become more aware of available choice options/ opportunities when presented with real-life scenarios similar to the ones they will face in adulthood. Students with intellectual disability can develop choice-making skills and become aware of their choice options. They can learn to maintain choice awareness as a result of choice-making training.

The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. During choice-making training, participants were provided with (a) choice-making scenarios, (b) describe and model character scenarios, (c) guided practice with prompts, and (d) independent practice. A multiple probe design with one replication was conducted. A multiple-probe design was conducted with six participants. The six participants were arranged in two triads. The setting was a self-contained classroom located within a local high school, in a southwestern state. Twelve students were selected to participate in this study, and six met the criteria for participating in the choice-making study. The results for each research question, as well as interobserver reliability for scoring and treatment fidelity are provided in this chapter. Finally, the chapter concludes with a brief summary.
Research Question 1

Research Question 1: Will choice-making training be effective in teaching students with intellectual disability to identify correct choices?

There were three data sets to answer research question 1 (i.e., pre and posttest data, baseline probes, and treatment sessions) to evaluate the effectiveness of the choice-making training. A visual analysis of the data was conducted for pre and posttest results, baseline, and treatment probes. Furthermore, to analyze the efficacy of the choice-making study, the percentage of nonoverlapping data (PND) was calculated.

Choice-Making Scenario Pre and Posttest

A Choice-Making Scenario Pre and Posttest (Appendix F and Appendix G) was administered to participants to evaluate their awareness of choice options. All participants completed the pre and posttest. Participants were given two choice-making scenarios. All participants were given five opportunities to identify a correct choice for each choice-making scenario. Responses were scored and evaluated using the Choice-Making Scenario Scoring Rubric (Appendix J). See Table 3 for results.

Phase I: Pre and Posttest Scores

Pretest scores were evaluated looking at the means, ranges, and standard deviation of each participant in the choice-making study. Posttest scores were investigated for each participant. See Table 4 for the pre and posttest scores of each participant in the choice-making study.
Table 3

*Correct Choice Options Identified During Pre and Posttest*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>0/10</td>
<td>6/10</td>
</tr>
<tr>
<td>Participant 2</td>
<td>2/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Participant 3</td>
<td>4/10</td>
<td>7/10</td>
</tr>
<tr>
<td>Participant 4</td>
<td>2/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Participant 5</td>
<td>4/10</td>
<td>4/10</td>
</tr>
<tr>
<td>Participant 6</td>
<td>2/10</td>
<td>5/10</td>
</tr>
</tbody>
</table>

Table 4

*Choice-Making Pre and Posttest Scores*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pretest</th>
<th>SD</th>
<th>Posttest</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>0%</td>
<td>0</td>
<td>60%</td>
<td>56.6</td>
</tr>
<tr>
<td>Participant 2</td>
<td>20%</td>
<td>0</td>
<td>60%</td>
<td>56.6</td>
</tr>
<tr>
<td>Participant 3</td>
<td>50%</td>
<td>14.1</td>
<td>70%</td>
<td>14.1</td>
</tr>
<tr>
<td>Participant 4</td>
<td>20%</td>
<td>0</td>
<td>20%</td>
<td>0</td>
</tr>
<tr>
<td>Participant 5</td>
<td>40%</td>
<td>28.3</td>
<td>40%</td>
<td>0</td>
</tr>
<tr>
<td>Participant 6</td>
<td>20%</td>
<td>0</td>
<td>50%</td>
<td>42.4</td>
</tr>
</tbody>
</table>
Phase Two: Baseline

Baseline mean and range percentages were examined during the choice-making study. Means and range percentages were measured to evaluate participants’ choice-making abilities. During treatment, Participant 1 through 6 met criterion (i.e., 80% or higher on three consecutive sessions). Baseline and treatment mean percentages were compared (i.e., Participants 1-6). Percentages were calculated by dividing the averaged baseline and treatment score.

Choice-Making Scenario Baseline Probes and Choice-Making Training Scenarios

Baseline probes were given to participants for three consecutive sessions. The Choice-Making Scenario Baseline Probe (Appendix H) was administered during baseline, and weekly probes. Choice-Making Training Scenarios (Appendix L) consisted of assessing participants’ awareness of choice-making options. Scenarios were aligned contentwise to baseline probes (See Table 5).
Table 5

Probes and Sessions Received By Each Participant

<table>
<thead>
<tr>
<th>Participant</th>
<th>#Baseline Probes</th>
<th>Choice-Making Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Participant 2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Participant 3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Participant 4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Participant 5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Participant 6</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

A visual analysis of each participant’s data during baseline was conducted. A visual analysis for Participant 1 during baseline revealed a stable baseline with no variability. A visual analysis of Participant 2 revealed a stable baseline with little variability except during the fourth baseline probe (i.e., 20%). Participant 2 demonstrated variability during one probe due to a distraction that occurred (i.e., phone call). A visual analysis for Participant 3 revealed little variability during the first three baseline probes, during the fourth baseline probe there was a slight acceleration, and during baseline probe five there was a downward acceleration. A visual analysis of Participant 4 revealed a stable baseline with no variability. A visual analysis of Participant 5 during baseline revealed a stable baseline with varied variability. During the first three baseline probes there was minimal variability however there was a spike during baseline four, and then Participant 5 stabilized during baseline probe five. A visual analysis for Participant 6 was examined.
and revealed minimal variability during baseline. There was a slight acceleration between baseline probe three and four, and slight deceleration during baseline probe five (See Table 6).

Table 6

Choice-Making Baseline Mean, Ranges, and Standard Deviation

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Participant 2</td>
<td>40%</td>
<td>20-60%</td>
<td>16.3</td>
</tr>
<tr>
<td>Participant 3</td>
<td>20%</td>
<td>0-60%</td>
<td>24.5</td>
</tr>
<tr>
<td>Participant 4</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Participant 5</td>
<td>10%</td>
<td>0-20%</td>
<td>11.5</td>
</tr>
<tr>
<td>Participant 6</td>
<td>20%</td>
<td>0-40%</td>
<td>20</td>
</tr>
</tbody>
</table>

Phase Three: Intervention

A visual analysis of each participant’s variability, trend, and level was performed. Participant 1 exhibited a flat and stable trend during baseline, once the intervention was introduced there was variability. Scores of Participant 1 slightly ascended, and an accelerating trend was observed, and the participant met criteria (i.e., 80% accuracy for three consecutive days). A visual analysis of Participant 2 exhibited a stable baseline with noted variability. Once intervention was introduced Participant 2 displayed an increase in acceleration, then a deceleration during session 10, and then leveled off with a gradual acceleration. Participant 3 exhibited a baseline with noted variability. Once intervention
was introduced a sharp accelerating trend was noted. A visual analysis of Participant 4 exhibited a flat trend during baseline (i.e., 0, 0, 0). Once intervention was introduced to Participant 4, the trend in the data revealed variability at first with a gradual accelerating trend. After the fourth session, Participant 4 data scores showed a trend in the data, and scores were ascending, and the participant met criteria. A visual analysis of Participant 5 exhibited a stable baseline. Once intervention was introduced a visual analysis of Participant 5 data scores revealed a sharp ascending trend of the data, meeting criteria within three days. A visual analysis of Participant 6 revealed a baseline that revealed noted variability. Once intervention was introduced no variability occurred during session 20, there was a spike in acceleration during session 21, and a deceleration during session 22. During session 23, there was sharp acceleration in data points, and within three days Participant 6 met criteria. See Table 7 for choice-making treatment percentages for each participant.
To analyze the efficacy of the choice-making study, the percentage of nonoverlapping data (PND) was calculated. The PND determines the treatment effects in single subject research. The following was used to calculate/determine the PND: (a) identify the highest baseline probe among all six participants, (b) identify the number of treatment probes from all six participants that were higher than the highest baseline probe, (c) identify the treatment probes higher than the highest baseline probe and divide the number of total probes, and multiply by 100. The PND was 68.9% for the choice-making study that suggests that the choice-making study was minimally effective for all six participants (Scruggs & Mastropieri, 1998). Next, the percentage of nonoverlapping data was calculated for each participant by identifying the highest point in each participant’s baseline, adding up the total choice-making sessions that were above the highest point in baseline, and dividing by the total sessions, and multiplying by 100. Therefore, the choice-making sessions were highly effective for Participants 1 (100%), 3 (100%), and 5

Table 7

Choice-Making Treatment Mean, Ranges, and Standard Deviation

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>64%</td>
<td>20-80%</td>
<td>26.1</td>
</tr>
<tr>
<td>Participant 2</td>
<td>84%</td>
<td>60-100%</td>
<td>16.7</td>
</tr>
<tr>
<td>Participant 3</td>
<td>87%</td>
<td>80-100%</td>
<td>11.5</td>
</tr>
<tr>
<td>Participant 4</td>
<td>51.4%</td>
<td>0-100%</td>
<td>41.4</td>
</tr>
<tr>
<td>Participant 5</td>
<td>93.3%</td>
<td>80-100%</td>
<td>11.5</td>
</tr>
<tr>
<td>Participant 6</td>
<td>70%</td>
<td>20-100%</td>
<td>39.5</td>
</tr>
</tbody>
</table>
The choice-making sessions were moderately effective for Participant 2 (80%) and 4 (86%) it was moderately effective. The choice-making sessions were minimally effective for Participant 6 (67%) (Gast, 2010) (See Figures 2 and 3).

**Research Question 2**

Research Question 2: Will students with intellectual disability be effective in maintaining choice-making skills?

There were two data sets to answer research question 2 (i.e., treatment sessions, and maintenance probes) to evaluate the maintenance of the choice-making training. A visual analysis of the data was conducted for treatment sessions and maintenance probes.

**Choice-Making Scenario Maintenance Probe**

One week post treatment maintenance probes were collected. Participants were assessed on their choice-making options. Two week post treatment a maintenance probe were collected (See Table 8).

**Maintenance**

Maintenance I and II mean and range percentages were calculated to assess the efficacy of the choice-making training. Additionally, calculations were made to evaluate participants’ maintenance scores of choice-makings skills one and two weeks post intervention. All six participants’ maintenance scores of the choice-making intervention varied. See Table 9 and Table 10 for maintenance mean, ranges, and percentages. See Table 11 for total maintenance mean, ranges, and standard deviation.
Table 8

Choice-Making Maintenance I and II Percentages

<table>
<thead>
<tr>
<th>Participant</th>
<th>Maintenance I</th>
<th>Maintenance II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>60%</td>
<td>20%</td>
</tr>
<tr>
<td>Participant 2</td>
<td>100%</td>
<td>80%</td>
</tr>
<tr>
<td>Participant 3</td>
<td>100%</td>
<td>80%</td>
</tr>
<tr>
<td>Participant 4</td>
<td>80%</td>
<td>60%</td>
</tr>
<tr>
<td>Participant 5</td>
<td>40%</td>
<td>80%</td>
</tr>
<tr>
<td>Participant 6</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 9

Choice-Making Maintenance I Mean and Ranges

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>60%</td>
<td>20-60%</td>
</tr>
<tr>
<td>Participant 2</td>
<td>100%</td>
<td>20-100%</td>
</tr>
<tr>
<td>Participant 3</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Participant 4</td>
<td>80%</td>
<td>20-80%</td>
</tr>
<tr>
<td>Participant 5</td>
<td>40%</td>
<td>20-40%</td>
</tr>
<tr>
<td>Participant 6</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
### Table 10

*Choice-Making Maintenance II Mean and Ranges*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Participant 2</td>
<td>80%</td>
<td>20-80%</td>
</tr>
<tr>
<td>Participant 3</td>
<td>80%</td>
<td>20-80%</td>
</tr>
<tr>
<td>Participant 4</td>
<td>60%</td>
<td>20-60%</td>
</tr>
<tr>
<td>Participant 5</td>
<td>80%</td>
<td>20-80%</td>
</tr>
<tr>
<td>Participant 6</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table 11

*Choice-Making Maintenance Mean, Ranges, and Standard Deviation*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Ranges</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>40%</td>
<td>20-60%</td>
<td>28.3</td>
</tr>
<tr>
<td>Participant 2</td>
<td>90%</td>
<td>80-100%</td>
<td>14.1</td>
</tr>
<tr>
<td>Participant 3</td>
<td>90%</td>
<td>80-100%</td>
<td>14.1</td>
</tr>
<tr>
<td>Participant 4</td>
<td>70%</td>
<td>60-80%</td>
<td>14.1</td>
</tr>
<tr>
<td>Participant 5</td>
<td>60%</td>
<td>40-80%</td>
<td>28.3</td>
</tr>
<tr>
<td>Participant 6</td>
<td>100%</td>
<td>100%</td>
<td>0</td>
</tr>
</tbody>
</table>
Maintenance and Treatment Percentages

Maintenance and treatment percentages were calculated to assess the efficacy of the choice-making training. See Table 12 for treatment and maintenance percentages.

Table 12

*Choice-Making Treatment and Maintenance Percentages*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Treatment</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>64%</td>
<td>40%</td>
</tr>
<tr>
<td>Participant 2</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Participant 3</td>
<td>93%</td>
<td>90%</td>
</tr>
<tr>
<td>Participant 4</td>
<td>51.4%</td>
<td>70%</td>
</tr>
<tr>
<td>Participant 5</td>
<td>93.3%</td>
<td>60%</td>
</tr>
<tr>
<td>Participant 6</td>
<td>70%</td>
<td>100%</td>
</tr>
</tbody>
</table>

A visual analysis revealed Participant 1 did not maintain criteria during the first maintenance probe. During the second maintenance probe Participant 1 scores slightly decelerated. Scores of Participant 1 slightly decelerated from treatment to maintenance due to a school mandated holiday (i.e., Spring Break). A visual analysis of Participant 2 data scores during the first maintenance probe shows that criteria was met. During the second maintenance probe there was a slight deceleration with little variability. There was little variability from treatment to maintenance. Participant 3 met criteria during the first maintenance probe, and there was a slight deceleration during the second maintenance probe with little variability. A visual analysis of Participant 4 exhibited a
slight acceleration from treatment to maintenance then a slight downward acceleration.
Once maintenance was introduced to Participant 4 the trend in the data revealed noted variability from treatment to maintenance. Participant 4 scores slightly decelerated from maintenance I probe to maintenance II probe due to a school mandated holiday (i.e. Spring Break). A visual analysis of Participant 5 exhibited a slight deceleration from treatment to maintenance. During the first maintenance probe Participant 5 was unable to meet criteria, during the second maintenance measure II data scores slightly accelerated. A visual analysis of Participant 6 revealed no variability from treatment to maintenance. Participant 6 maintained their choice-making abilities for both maintenance probes (i.e., 100%).

Research Question 3

Research Question 3: What was the special education teacher’s perception of the implementation of the choice-making study?

To answer research question 3 a social validity measure was administered to the special education teacher to evaluate the choice-making training.

Social Validity Measure

During pretest, the teacher expressed that the choice-making study would be difficult for some of the participants. The teacher had particular concerns about two participants, and expressed that they needed to be given additional supports. The teacher recommended that a whiteboard be used during independent practice (i.e., to view brainstorming ideas between participant and special education teacher), if it were not used participants would most likely be in intervention for a very long time. Additionally, she expressed that one of the participants would be unable to recall anything without the
whiteboard in plain sight. The teacher noted that she was unsure if some of the participants would even be able to grasp the concept of the choice-making study. Nevertheless, the teacher was overly optimistic and supportive throughout the sessions.

The teacher was supportive in implementing the choice-making study (Table 13). presents the results from the Social Validity Measure (Appendix O). The teacher encouraged and assisted all participants during the choice-making study. She followed the daily script, video camera, choice-making scenarios (i.e., describe and model, guided practice, and independent practice), and diligently implemented instruction/training. Post study, the teacher expressed her perceptions of the choice-making study. She commented (i.e., added on the back of the social validity measure) that the choice-making scenarios really helped the participants who had moderate intellectual disability; they benefited from the study and increased their choice-making abilities in general. Additionally, she expressed verbally that it was a wonderful experience to see participants who did poorly during baseline slowly start to understand the concept of choices. Lastly, the teacher expressed that being a part of the study brought joy since working with the participants gave that extra jump in her step.
Table 13

*Social Validity Questionnaire of the Special Education Teacher*

<table>
<thead>
<tr>
<th>Choice-Making Scenario Sessions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice awareness is important teach</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Methods and procedures were easy</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Increase student choice-making abilities</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Choice-making training was time-friendly</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Increased student choice awareness</td>
<td>Agree</td>
</tr>
<tr>
<td>Enabled students to identify choice-making options</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Useful delivery of choice instruction</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Post-study research in choice-making should continue</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

**Interobserver Reliability**

The student investigator and a doctoral student conducted interobserver reliability checks until 100% agreement was established for three successive sessions. Interobserver reliability was computed for 20% of random sessions across the choice-making study. Reliability checks were conducted for *Choice-Making Scenario Pretest* (Appendix F), *Choice-Making Scenario Baseline Probe* (Appendix H), *Choice-Making Training Scenarios* (Appendix L), *Choice-Making Scenario Posttest* (Appendix G), *Choice-Making Scenario Maintenance Probe* (Appendix I), and *Procedural Fidelity Checklist*.
(Appendix M). Fidelity checks that occurred weekly resulted in 100% agreement, a high level of fidelity.


**Procedural Fidelity Checklist**

A *Procedural Fidelity Checklist* (Appendix M) was used to assess if the teacher followed the steps outlined in the *Instructions and Script for Choice-Making Training*. The student investigator and the doctoral student conducted checklists until there was agreement on three successive sessions. Procedural fidelity checklists were conducted weekly throughout the study.
Table 14

Interobserver Agreement Measure Data

<table>
<thead>
<tr>
<th>Measure</th>
<th>Data Collectors</th>
<th>Percentage of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice-Making Scenario Pretest</td>
<td>120/120</td>
<td>100%</td>
</tr>
<tr>
<td>Choice-Making Scenario Baseline Probe</td>
<td>90/90</td>
<td>100%</td>
</tr>
<tr>
<td>Choice-Making Training Scenario Session</td>
<td>290/290</td>
<td>100%</td>
</tr>
<tr>
<td>Choice-Making Scenario Posttest</td>
<td>120/120</td>
<td>100%</td>
</tr>
<tr>
<td>Choice-Making Scenario Maintenance</td>
<td>120/120</td>
<td>100%</td>
</tr>
<tr>
<td>Procedural Fidelity Checklist</td>
<td>144/144</td>
<td>100%</td>
</tr>
</tbody>
</table>

Summary of Results

The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. Data were collected from pre and posttest, baseline probes, intervention, and maintenance probes. A multiple probe design with one replication was conducted with participants. The purpose of the replication was to analyze the results, and to ensure that the increase in participants choice-making was due to the effectiveness of the choice-making scenarios.

All six participants in the choice-making study achieved a stable baseline prior to beginning intervention with the choice-making training. An analysis of the data indicated a level of increase for all six participants. A visual analysis of trend, level, and mean were conducted for each participant.
All participants in the choice-making training scenarios demonstrated an increased improvement in their choice-making abilities and recognition of choice options. Data scores increased for some participants during pre and posttest scores specifically Participants 1, 2, and 6. During intervention increased trends were noted and recorded for all six participants. All six participants showed increased levels in the area of choice-making when provided with choice-making training scenarios.
Figure 2. Students Accuracy of Choice-Making
Figure 3. Students Accuracy of Choice-Making

- Baseline
- Treatment
- Maintenance I
- Maintenance II

- Participant 4
- Participant 5
- Participant 6

Percentage Correct

Choice-Making Scenarios

1 5 10 15 20 25 30 35 40
CHAPTER 5
DISCUSSION

Students with disabilities can learn the components of self-determined behavior: (a) choice-making, (b) decision-making, (c) problem-solving skills, and (d) self-advocacy (Wehmeyer, Shogren, Zager, Smith, and Simpson, 2010). Beginning in elementary school, services, and supports to enhance the personal outcomes for students with disabilities are first established (Schalock, Gardner, & Bradley, 2007). One of these supports is exposure to the skills of choice-making. Choice-making skills can be easily generalized when students with disabilities are taught at an early age (Lee, Palmer, Turnbull, & Wehmeyer, 2006). Early in a child’s education teachers should create a classroom environment that allows for choice-making as well as opportunities for students to experience success and failure around choices made (Wall & Dattilo, 1995). Choice-making is a life skill that individuals with disabilities can possess and carry into adulthood (Palmer, 2010; Wehmeyer & Schwartz, 1998; Wehmeyer, 2005).

Students with intellectual disability display deficits in the areas of choice-making. Researchers have suggested teaching choice-making to all individuals with disabilities (i.e., intellectual disability, emotional behavioral disturbance, multiple disabilities, etc.) (Bambara, 2004; Clark & McDonnell, 2008; Jolivette, Wehby, Canale, Massey, 2001). There is a critical need for a logical way to teach choice-making to students with intellectual disability. In order to possess the skill of choice-making students need to know that they have choices that they can make in everyday life. Researchers indicate
that choice-making is an important skill for students with intellectual disability to possess (Manhertz, 2006).

The purpose of this study was to determine if high school students with intellectual disability, when given choice training, would improve their choice selections. Choice-making training included teaching high school-age students with intellectual disability to identify choice-making options through scenarios. Choice-making scenarios focused on (a) job choices, (b) hygiene choices, and (c) lifestyle choices. Scenarios were used to teach participants that they have choice options in every life situation. It was predicted that participants with intellectual disability would identify correct choices when presented with choice-making opportunities/alternatives following choice-making training scenarios. Additionally, it was predicted that participants with intellectual disability would maintain their choice awareness following choice-making training scenarios.

The study included six high school-aged students with intellectual disability, from one self-contained classroom. Participants all attended a public school, and all received services under the primary disability code of intellectual disability in a self-contained setting. The participant’s level of intellectual disability varied (i.e., three participants with mild intellectual disability, three participants with moderate intellectual disability). The choice-making study was conducted for over nine-weeks. Participants from diverse backgrounds participated in the study (i.e., Caucasian, Korean, Hispanic). The choice-making study included a screening test, pre and posttest, baseline, intervention, and two maintenance probes.
Student Performance of Choice-Making

Question one addressed the effectiveness of the choice-making intervention. It was initially hypothesized that participants who received choice-making training scenarios would increase their choice options and identify correct choices related to the scenario. The data suggested that all participants were effective in identifying choice options and choice alternatives when presented with choice-making training scenarios. Results from the data indicated that all six participants increased their choice-making abilities. It was noted that that the immediacy of improvement levels was not as strong for Participants 1, 4, and 6.

Participant 1 was able to identify correct choices but needed minimal supports (i.e., prompting throughout choice-making training scenarios). Participant 1 relied heavily on cues during brainstorming, and guided practiced. This may have occurred because the participant rarely had the opportunity to engage in choice-making. Participant 1 did not know that there were choice options. During independent practice, Participant 1 rarely generated answers following the brainstorming sessions, but after a few sessions began generating answers with the aide of the special education teacher. Participant 1 heavily relied on prompts throughout the school day from staff (i.e., special education teacher, specialized program teachers assistant). Participant 1 may have benefited from longer choice-making training scenarios to maintain the concepts being introduced. Participant 4 needed intensive supports throughout the choice-making training scenarios (i.e., prompting, checking for understanding). Similar Participants 1, and Participants 4 relied heavily on teacher prompting throughout the school day. The special education teacher suggested that Participant 4 was unable to learn anything beyond her A, B, C’s, and
Participant 1 could not remember anything for more than a few seconds. Specifically, there were initial concerns regarding Participant 4 being able to generate correct choice options. After four days, Participant 4 was able to generate correct choice options with minimal teacher supports. Minimal teacher supports consisted of checking for comprehension throughout the training, and repeating questions when deemed necessary. Participant 4 grasped the concept of choice-making, possibly due to the special education teacher’s adherence to the script, and ultimately, a positive attitude about the participant’s ability to meet criteria. At the end of the study Participant 4 stated that she felt like a rock star for completing all the choice-making scenarios and meeting criteria. Participants 1 and 4 required additional prompting during choice-making training. It is important to note that some students may require additional supports during choice-making training. Participant 6 may have had a less immediate effect due to the fact that the participant would often repeat what the special education teacher was stating. Often Participant 6 would not realize that a choice needed to be generated. During baseline, Participant 6 failed to respond to the teacher’s questions when asked, and would generate answers related to the scenario but not the correct answers. During intervention, her performance remained stable during the first few sessions, and after a few sessions of intervention Participant 6 realized the choice-making scenarios were different, and other choices were available to her. Participant 6 often became stuck on the prior scenario, generating answers from the previous session. With the teacher’s help, Participant 6 learned to stop and listen to the scenario. At times, Participant 6 had to have the scenario reread (i.e., guided practice) in order to understand the question being asked or repeated the teacher’s question. During the final three choice-making training scenarios it became apparent that Participant 6
generated answers with minimal teacher assistance, and understood the available choices related to the scenario. Participant 6 required additional supports during the training (i.e., brainstorming, additional prompting). Lastly, the participant had a secondary diagnosis of Autism, possibly interfering with the retention and introduction of new choice-making training scenarios.

Participants 2, 3, and, 5 demonstrated an immediate substantial improvement when treatment began. Participant 2 did well during the choice-making scenarios, and was able to maintain choice-making skills when intervention ended. It was noted that prior to Participant 2 starting intervention there was a decline in data scores. However, Participant 2 had experienced an interruption during baseline (i.e., phone call). He also experienced an interruption (i.e., fire drill) during independent practice that may have resulted in not meeting criteria on that session. Participant 2 had a good understanding of what choice-making was, but failed to realize that options were available in every choice situation. During baseline, Participant 3 failed to recognize that more choice options were available. Once training was introduced, Participant 3 met criteria within three days responding quite well to the intervention. Participant 3 generated answers during brainstorming sessions with minimal teacher assistance, and was able to distinguish between choices that would and would not work according to the scenario. Participant 3 stated that the choice-making training scenarios greatly helped her in identifying more than one choice (i.e., multiple choices). Participant 5 did well during intervention and was able to meet criteria within three days. It was noted that Participant 5 would stare at the special education teacher and blink a few times before generating an answer, as if the participant needed additional response time. Once Participant 5 processed what was asked of her, she
produced full sentence responses. The data suggested that Participant 5 increased in choice-making following the introduction of training.

Data suggested that all six participants individually responded well to the choice-making training, making improvements once treatment was introduced. All participants varied in ability level and retention of the choice-making training scenarios. The study could have been done differently, using choice-making training scenarios that were about the individual participants instead of additional scenarios about characters. It was noted that participants became confused when the scenarios were generalized to them (i.e., during the guided prompt portion of the choice-making training scenarios). Additionally, two participants relied heavily on memorization during brainstorming. When they were provided with 10 still picture photographs during guided practice they tried to recall what they saw or what was discussed with the special education teacher (i.e., Participant 1 and 4). Initially, Participant 6 relied heavily on prompts, but after a few scenarios the concept of choice-making became clear.

Question two addressed the maintenance of choice-making skills with all six participants. Data suggested that three of the six participants were able to maintain their choice-making abilities up to two weeks after intervention had ended (i.e., Participant 2, 3, and 6). Participant 1 was unable to maintain choice-making abilities due to her heavy reliance on prompting as in the choice-making training scenarios. During the first maintenance it was noted that Participant 1 and 4 met criteria and then two weeks post instruction when provided with the second maintenance probe the participant’s score declined. An explanation for the declining scores may be that both participants relied heavily on prompts and struggled with long-term retention of information. Both
participants were capable of maintaining choice-making if they received choice-making training scenarios for a longer period of time. Participant 5 did not do as well on the first maintenance probe compared to the second maintenance probe due to the fact there was a mandated school holiday break (i.e., 5 day spring break) resulting in a delayed maintenance probe (i.e., three weeks post instruction). Participant 5 may have benefited from receiving the first choice-making maintenance probe after the mandated holiday. Additionally, a refresher choice-making training scenario would have benefited all participants prior to implementing the choice-making maintenance probes, since individuals with intellectual disability have difficulty maintaining new concepts in a short amount of time. Nevertheless, children with intellectual disability are capable of maintaining choice-making skills even in a short amount of time. That is why this choice-making study was conducted using a multiple probe design with one replication to verify the results of both triads.

**Limitations**

Despite the positive findings in this study, it is important to consider that all studies have limitations. Limitations within this choice-making study included the population of participants who received choice-making training scenarios. First, the study may have been strengthened if all participants were either students with mild intellectual disability or moderate intellectual disability. Additionally, two of the participants (i.e, Participant 4, Other Health Impairments; Participant 6, Autism), had a secondary diagnosis which possibly may have interfered with their choice-making abilities and maintenance of skills. Secondly, the training was difficult for the teacher to solely implement. Because there
were several components to the choice-making training scenarios, on a few occasions the special education teacher became confused.

Teachers Perception of Choice-Making Training

The special education teacher initially questioned the choice-making study. She doubted if the participants would be able to reach criteria. She was specifically concerned with the participants during baseline who demonstrated low data scores (i.e., 0, 0, 0). Prior to the intervention she made multiple comments regarding her concerns. Post-training the teacher answered seven questions regarding the choice-making study and strongly agreed that choice awareness was important to teach, methods and procedures were fairly easy, time-friendly, enabled participants to identify choice options, useful delivery, and more post-study research should be conducted. She agreed that the choice-making study increased participants’ choice-making awareness. The special education teacher felt relieved once the participants met criteria, her whole demeanor changed once she saw participants making advances in the area of choice-making. What once seemed impossible with some of the participants appeared to vanish once participants understood the components of choice-making. This suggests future choice-making research needs to be implemented with more students across multiple teachers who teach students with intellectual disability. Additionally, teachers should try teaching choice-making even if they are skeptical.
Conclusions Based on Choice-Making Study

Based on the data results from the study, several conclusions can be drawn regarding the effectiveness of the choice-making study:

1. Participants with intellectual disability who received choice-making training increased their choice-making abilities.
2. Participants with intellectual disability who received choice-making training were able to maintain their choice-making abilities.
3. Participants with intellectual disability who received choice-making training can increase their choice options.
4. Teacher’s perceptions suggest that choice-making is a vital component to teach to students with intellectual disability.

Summary and Implications for Practice

Researchers acknowledge that choice-making is a sub component of self-determination. It is vital for students with intellectual disability to possess the ability to make choices. Students with intellectual disability who have been exposed to choice-making have increased their choice awareness. There has been limited research in the area of choice-making for high school students with mild to moderate intellectual disability.

Choice-making instruction was conducted with high school students with intellectual disability to determine the effectiveness of choice-making instruction. Furthermore, the choice-making study evaluated participants’ choice-making skills to determine if they
increased their awareness of choices in everyday life. Furthermore, the participants were assessed during pre and posttest, baseline, intervention, and two maintenance probes.

Data suggests that all participants increased in their choice-making abilities. Although not directly assessed in this study, it may be helpful to reduce the length of choice-making scenario sessions from 15 minutes to 10 minutes. Choice-making training can sometimes become overwhelming for a student with intellectual disability (i.e., brainstorming about a character, then delivering a choice-making scenario generalized to them) when delivering the independent practice perhaps causing the participant to overthink choices available. Participants with moderate intellectual disability relied heavily on prompts and when the whiteboard was turned around during independent practice they wanted to peak around the side to view the choices that were available to them.

Additionally, some but not all participants were able to maintain their choice-making skills. The maintenance condition varied for some participants due to a mandated school holiday that occurred between intervention and delivery of maintenance one and two (i.e., spring break). It is important to keep in mind when creating choice-making scenarios that they are not too wordy, or lengthy causing confusion to the student answering the question. It is important that students with mild or moderate intellectual disability receive increased opportunities to practice choice-making and receive prompting or reviews in order to maintain their skills. Students with intellectual disability, who participate in choice-making training, are capable of identifying choice options in every life situation.

Students with intellectual disability have been limited in the area of choice-making instruction, however this study resulted in increased choice-making awareness in students.
with intellectual disability. It would be beneficial for all students with and without disabilities to be exposed to choice-making. When teachers expose students to choice-making, students can generalize these skills to multiple settings besides the classroom (i.e., community, home, and work). When students are exposed to choice-making training they realize that they have multiple choices within any given situation. Students also become less reliant on educators and learn to make choices on their own, becoming autonomous individuals.

This choice-making study contributes to the choice-making literature and addressed the need for how to teach choice-making. Due to the lack of choice-making instructional delivery research, additional studies should be conducted in the area of choice-making, addressing the needs of students with intellectual disability. It is vital that students with intellectual disability continue to progress in the area of choice-making and learn to recognize all of the choice options that they have in their everyday lives. This will help them become productive adult members of society.

**Implications for Future Research**

The following five recommendations are suggested for future research for students with disabilities. It is anticipated that future researchers will expand upon this research and use choice-making training scenarios with students with a variety of disabilities. All individuals with disabilities have the right to make choices, and can be empowered in the area of choice-making. Specifically it is recommended that:

1. Future research be conducted with students with severe cognitive disabilities with the use of still picture photographs.
2. Future research be conducted with students with intellectual disability beginning in elementary school.

3. Future research be conducted with students with autism.

4. Future research be conducted with students with intellectual disability with a larger sample size (i.e., group design).

5. Future research be conducted with students with disabilities using the Apple iPad™.
APPENDIX A

STUDENT ASSENT FORM
STUDENT ASSENT TO PARTICIPATE IN RESEARCH

Increasing Choice-Making and Awareness with Students with Intellectual Disability

- My name is Mrs. Sparks.

- We are asking you to take part in a research study because we are trying to learn more about choice-making and choice options in everyday life with students with intellectual disability.

- In order to participate in this study you will participate in a screening test. Once you have passed the screening test you will be found eligible to receive choice-making training.

- Choice-making training will take place for 15-20 minutes during your daily classroom instruction. You will participate in choice-making training for up to 15 weeks.

- If you agree to be in this study you will receive choice-making training. Your teacher will help and guide you during choice-making scenario sessions.

- During this choice-making training I will watch your teacher read you choice-making scenarios with photographs. Your teacher will write down your answers and record you using a video recorder. There is little risk to you from participating in this study.

- You may find that you are able to make choices. You may be able to recognize and identify choices that you have in every situation.

- Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say “yes” you can still decide not to do this.

- If you don’t want to be in this choice-making study, you don’t have to participate. If you wish not to participate you will continue to receive your daily classroom instruction by a licensed teacher. Remember, being in this study is up to you and no one will be upset. Your daily classroom participation and grade will not be affected if you decide to be a part of the choice-making training. If you don’t want to participate or even if you change your mind later and want to stop.

- You can ask any questions that you have about the study. If you have a question later that you didn’t think of now, you can call Dr. Pierce or I at 895-1104, or ask me next time. If I have not answered your questions, or you do not feel comfortable talking to me about your question, you or your parent can call the UNLV Office of Research Integrity – Human Subjects at 702-895-2974 or toll free at 877-895-2794.

- Signing your name at the bottom means that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

Print your name _______________________________ Date _______________________________

Sign your name

Approved by the UNLV IRB. Protocol #1211-43100M
Received: 02-06-13 Approved: 02-07-13 Expiration: 02-06-14
PARENT PERMISSION FORM
Department of Educational and Clinical Studies

TITLE OF STUDY: Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability
INVESTIGATOR(S): Dr. Tom Pierce and Shannon L. Sparks
CONTACT PHONE NUMBER: Dr. Tom Pierce, 895-1104

Purpose of the Study:
Your child has the opportunity to participate in a research study. The goal of this study is to increase your child’s awareness of choice-making and choice. The purpose of this study is to investigate the overall benefits of choice-making training for students with intellectual disability.

Participants:
Your child is being asked to participate in the study because he or she is a high school student with an intellectual disability, and receives special education services in a self-contained setting.

Procedure:
If you allow your child to participate in this study, your child will be asked to do the following: participate in choice-making training sessions for up to 15 weeks. Daily instruction will last from 15-20 minutes daily. During each session, your child will receive choice-making training scenario sessions. Using real life choice-making scenarios your child will be given opportunities to explore choice options with still picture color photographs. Sessions will be videotaped to ensure the accurate responses of your child. Additionally, your child will participate in pre and posttest measures of his or her choice-making abilities with the support of a special education teacher.

Benefits of Participation:
There may be direct benefits to your child from participating in the choice-making training. We hope that your child improves in his or her choice-making abilities and realizes that there are choice options available in every situation he or she is presented.

Risks of Participation:
This choice-making study may include minimal risk due to the loss of instructional time your child will encounter while participating. However, your child will only be away from his/her normal activities for a small portion of time in the day, and the research activities are intended to be similar to his/her normal class activities.

Cost/Compensation

Approved by the UNLV IRB. Protocol #1211-4310M
Received: 02-06-13 Approved: 02-07-13 Expiration: 02-06-14

Participant Initials

1 of 2
TITLE OF STUDY: Increasing Choice Making and Awareness with Students with Intellectual Disability

There will not be financial cost to you to participate in this study. The study will take 15-20 minutes during their normal classroom day. This choice-making training will take place for up to 15 weeks. Your child will not be compensated for their time.

Contact Information
If you or your child have any questions or concerns about the study, you may contact Dr. Pierce or Shannon L. Sparks at 895-1104. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.

Voluntary Participation
Your child’s participation in this study is voluntary. Your child may refuse to participate in this study or in any part of this study. If your child chooses not to participate in this study he or she will continue to receive daily classroom instruction from a licensed teacher. Your child may withdraw at any time without prejudice to your relations with the university. You and your child are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept as confidential as possible within the research team. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be shredded and destroyed.

Parent Permission:
I have read the above information and I give permission for my child to participate in the study and to be videotaped. A copy of this form has been given to me and my child.

____________________________________  ______________________________________
Signature of Parent                      Child’s Name (Please print)

____________________________________
Parent Name (Please Print)               Date

By signing below, I agree to allow my child to be videotaped during the course of this research study.

____________________________________
Signature of Parent

Approved by the UNLV IRB. Protocol #1211-4310M
Received: 02-06-13  Approved: 02-07-13  Expiration: 02-06-14

Participant Initials ______

2 of 2
APPENDIX C

ADULT CONSENT FORMS
UNLV
ADULT CONSENT FORM
Department of Educational and Clinical Studies

TITLE OF STUDY: Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability
INVESTIGATOR(S): Dr. Tom Pierce and Shannon L. Sparks
CONTACT PHONE NUMBER: Dr. Tom Pierce, 895-1104

Purpose of the Study
You have the opportunity to participate in a research study. The goal of this study is to increase your awareness of choice-making and choice. The purpose of this study is to investigate the overall benefits of choice-making training for students with intellectual disability.

Participants
You are being asked to participate in the study because you are a high school student with an intellectual disability, and receive special education services in a self-contained setting.

Procedures
If you want to participate in this study, you will be asked to do the following: participate in choice-making training sessions for up to 15 weeks. Daily instruction will last from 15-20 minutes daily. During each session, you will receive choice-making training scenario sessions. Using real life choice-making scenarios you will be given opportunities to explore choice options with still picture color photographs. Sessions will be recorded to ensure the accurate responses of your answers. Additionally, you will participate in pre and posttest measures of your choice-making abilities with the support of a special education teacher.

Benefits of Participation
There may be direct benefits to you from participating in the choice-making training. We hope that you improve your choice-making abilities and realize that there are choice options available in every situation you are presented.

Risks of Participation
This choice-making study may include minimal risk due to the loss of instructional time you will encounter while participating. However, you will only be away from your normal activities for a small portion of time in the day, and the research activities are intended to be similar to your normal class activities.

Cost/Compensation

Approved by the UNLV IRB. Protocol #1211-4310M
Received: 02-06-13 Approved: 02-07-13 Expiration: 02-06-14

Participant Initials _____
TITLE OF STUDY: Increasing Choice Making and Awareness with Students with Intellectual Disability

There will not be financial cost to you to participate in this study. The study will take 15-20 minutes during your normal classroom day. This choice-making training will take place for up to 15 weeks. You will not be compensated for your time.

Contact Information
If you have any questions or concerns about the study, you may contact Dr. Pierce or Shannon L. Sparks at 895-1104. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. If you choose not to participate in this study you will continue to receive daily classroom instruction from a licensed teacher. You may withdraw at any time without prejudice to your relations with the university. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept as confidential as possible within the research team. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be shredded and destroyed.

Participant Permission:
I have read the above information and I give permission to participate in the study and to be videotaped. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

____________________  ____________________
Signature of Participant   Date

____________________
Participant’s Name (Please print)

By signing below, I agree to be videotaped during the course of this research study.

____________________
Signature of Participant

Approved by the UNLV IRB. Protocol #1211-4310M
Received: 02-06-13 Approved: 02-07-13 Expiration: 02-06-14

Participant Initials
Screening Test

Student: _______________________________
Date: _______________________________

<table>
<thead>
<tr>
<th>Identified object/function +/− 1 pt.</th>
<th>Could not identify −/− 0 points</th>
<th>No response/ −/− 0 points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Student identified the object cell phone and stated the function of a cell phone.

(2) Student identified the object telephone and stated the function of a telephone.

(3) Student identified the object computer and stated the function of a computer.

(4) Student identified the object microwave and stated the function of a microwave.

(5) Student identified the object alarm clock and stated the function of a alarm clock.

Total: ________/5
APPENDIX E

STUDENT DEMOGRAPHIC QUESTIONNAIRE
Dear Parent(s):

This student demographics questionnaire will be kept confidential and will be used primarily by the student investigator for statistical information. The participation in this choice study is voluntary only. The following student demographics need to be completed for each student:

*Student Demographics*

Gender: __________

Age: __________

Grade: ___

Ethnicity:

  Hispanic ___
  African-American ___
  Pacific Islander ___
  Asian ___
  Native American ___
  White (non-Hispanic) ___
  Other ___
APPENDIX F

CHOICE-MAKING SCENARIO PRETEST
Scenario 1

You have to apply for a job. You need to work to make money and some of your friends have jobs. You want to work!

Can you tell me what choice(s) you have?

Can you tell me another choice that you have?

1. _______________________

2. _______________________

3. _______________________

4. _______________________

5. _______________________

Scenario 2

You just finished playing basketball with your friends. It was hot outside. You are thirsty!

Can you tell me what choice(s) you have?

Can you tell me another choice that you have?

1. ______________________

2. ______________________

3. ______________________

4. ______________________

5. ______________________
APPENDIX G

CHOICE-MAKING SCENARIO POSTTEST
Scenario 1

You have to apply for a job. You need to work to make money and some of your friends have jobs. You want to work!

Can you tell me what choice(s) you have?

Can you tell me another choice that you have?

6. __________________________

7. __________________________

8. __________________________

9. __________________________

10. __________________________
Scenario 2

You just finished playing basketball with your friends. It is hot outside. You are thirsty!

Can you tell me what choice(s) you have?

Can you tell me another choice that you have?

6. __________________________

7. __________________________

8. __________________________

9. __________________________

10. __________________________
APPENDIX H

CHOICE-MAKING SCENARIO BASELINE PROBE
Baseline Probe 1

You have a spelling test this Friday. You want to pass your test with a good grade. You hope to get an A or B on the test.

Can you tell me what choice(s) you have?
Baseline Probe 2

You have a job interview at the pet store today. You need to dress nice for the job interview. You want to look nice for the boss when you interview.

Can you tell me what choice(s) you have?
Baseline Probe 3

You have been invited to a Homecoming Dance. You really want to go! It is your Senior year of high school. You do not have plans for the dance yet. You would like to go to the dance this Saturday.

Can you tell me what choice(s) you have?
Baseline Probe 4

You love listening to music. You like all types of music. You want to listen to music in your bedroom.

Can you tell me what choice(s) you have?
Baseline Probe 5

Your mom went to the grocery. You want to make lunch for school today. First, you open the fridge to see what you can make.

Can you tell me what choice(s) you have?
Baseline Probe 6

You got a new puppy for your birthday. You have dog food but want to buy something new for the puppy. You are going to the pet store.

Can you tell me what choice(s) you have?
Baseline Probe 7

You just ate dinner with your family. You want to have a snack, while you watch your favorite movie. You go and look for a snack.

Can you tell me what choice(s) you have?
Baseline Probe 8

Your mom paid you $20.00 for doing the dishes. You are excited and want to buy something special with the money. You want to go to the store.

Can you tell me what choice(s) you have?
Baseline Probe 9

Your mom’s birthday is coming up. You and dad want to buy something for mom at the mall. Your dad said that you could pick an item for your mom’s birthday.

Can you tell me what choice(s) you have?
Baseline Probe 10

You just got off the school bus. You are going to first period and you have started feeling sick. You have a headache and feel really bad.

Can you tell me what choice(s) you have?
APPENDIX I

CHOICE-MAKING SCENARIO MAINTENANCE PROBE
Maintenance Probe

You are walking to the park with a friend. You both love hanging out at the park. There are many activities to do at the park.

Can you tell me what choice(s) you have?
Maintenance Probe

You decided to go to the mall. You are with your friends and you want to eat at the food court. The food court has many places to eat.

Can you tell me what choice(s) you have?
APPENDIX J

CHOICE-MAKING SCENARIO SCORING RUBRIC
Choice-Making Scenario Scoring Rubric

Student: _______________________________
Date: ________________________________

| (1) Student identified an initial choice |  |  |
| (2) Student identified a second choice |  |  |
| (3) Student identified a third choice |  |  |
| (4) Student identified a fourth choice |  |  |
| (5) Student identified a fifth choice |  |  |

Total: ________/5
APPENDIX K

INSTRUCTIONS AND SCRIPT FOR CHOICE-MAKING TRAINING
Instructions and Script for Choice-Making Training

Advanced Organizer (2 minutes)

1. Inform student that he/she will be learning about choice-making and choice options. Introduce and discuss previous choice-making training session.

   *Sample dialogue:*

   Today we are going to learn about the choices that we have in every situation.

   Yesterday we learned about making choices (i.e., hygiene, job, health). Today we will be learning about job choices.

Describe and Model (5 minutes)

2. Introduce character scenario to student.

   *Sample dialogue:*

   I will read a short story and ask you a few questions afterwards.

3. For example, after reading the *Choice-Making Scenario* (i.e., choice another character has made), the following questions will serve as prompts/cues for the teacher to present to the student.

   *Sample dialogue:*

   You just listened to the scenario that I read. I would like for you to tell me what choice did he/she make? What are some other choices he/she could make?
4. Discuss choices the character could have made. Give the student opportunity to brainstorm alternative choices/ options.

*Sample dialogue:*

Now we are going to share some ideas together. Can you tell me what choice he/she make? What are other choices he/she have make? Good choice, I will write this on the whiteboard.

**Feedback**

5. Provide student with positive feedback regarding his or her choices.

*Sample dialogue:*

You have provided several choices the character could have made. You need to know that you have choices too. You can make choices in the classroom, at lunchtime, and at home with your parents. However, some choices fit and some do not.

**Guided Practice (5 minutes)**

6. After discussing choice alternatives and providing feedback, teacher will introduce a supplementary choice scenario to the student. Teacher will read the supplementary choice scenario aloud to the student.

*Sample dialogue:*

You just shared a lot of choices with me. Now, I am going to read another short story and you will have to make a choice. It is only three to four sentences long. I want you to listen carefully as I read the scenario.
7. The teacher will place 10 still picture photographs on the table and explain what each picture means:

*Sample dialogue:*

I have placed 10 pictures on the table. I will explain what each picture is to you. I will then re-read the scenario to you.

8. The teacher will prompt the student.

*Sample dialogue:*

I have placed 10 pictures on the table for you to look at. I will point to each picture. I want you to tell me what choice would work. When I point to the picture you can answer with a yes or no and we will discuss your answer. Next, I will ask you why that choice would or would not work?

**Feedback**

9. Provide student with positive and corrective feedback (i.e., *Good job, Yes that would work, No you are right, that would not work*) regarding the individual choice decided on and why it would or would not work for the selected choice-making scenario.

*Sample dialogue:*

You made a good choice; texting would be a good way of letting your friend know that you want to go to her birthday party. No, picking the picture of chicken fingers as a choice would not work, because you cannot tell your friend that you want to go here birthday party using a chicken finger.
Independent Practice with Verbal Prompts (2 minutes)

10. Introduce the independent practice to student.

   *Sample dialogue:*

   I will read a short story and ask you a few questions afterwards.

11. The teacher will prompt the student.

   *Sample dialogue:*

   I now want you tell me what choice would work. “Can you tell me what choice(s) you have?” I will give you five opportunities. As the student makes a choice the teacher will provide the student with positive feedback such as, “Good job,” “Nice!” Do not provide corrective feedback. Teacher will assess student using the Choice-Making Scoring Rubric (Appendix J).

Conclusion (1 minute)

12. Teacher will then conclude the choice training session.

   *Sample dialogue:*

   You need to realize that you have choices in everyday life. Good work today!
APPENDIX L

CHOICE-MAKING TRAINING SCENARIOS
Session 1 - *Describe and Model*

Megan was invited to a birthday party this Friday. She wants to go!

What choice did she make?

What choices does she have?
Session 1 - Guided Practice

You are invited to a birthday party this Friday. You have to tell your friend that you want to go to his/her party.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Text message
Send an email
Write a letter
Send a message on Facebook
Call on the phone

Distracters:

Chicken Fingers
Skateboard
Video game
Taquitos
Glass of water
Session 1 - *Independent Practice*

You are invited to a birthday party this Friday. You have to tell your friend that you want to go to his/her party.

Can you tell me what choice(s) you have?
Session 2- *Describe and Model*

Chris has a job at the local grocery store. He has to be to work on time so he does not lose his job. Chris does not have a ride. He called his friend to give him ride to work.

What choice did he make?

What choices does he have?
Session 2- *Guided Practice*

You have a job and do not have a ride to work. You need a ride to get to your job on time.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

CAT bus

Call a friend on a cellphone

Call a relative on the phone

Ask a parent

Walk

Distracters:

Television

Mirror

Hairdryer

Compact disc

Computer
Session 2: *Independent Practice*

You have a job and do not have a ride to work. You need a ride to get to your job on time.

Can you tell me what choice(s) you have?
Session 3- *Describe and Model*

Melanie woke up this morning. She has a sore throat and her stomach hurts. She does not feel well. She asked her dad if she can stay home from school today and rest in bed.

What choice did she make?

What choices does she have?
Session 3 - Guided Practice

You woke up this morning and are not feeling well. You have a sore throat and your stomach hurts. You feel sick!

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Going to the doctor
Rest in bed
Take your temperature
Take NyQuil
Take PeptoBismol

Distracters:

Candy
Necklace
Skateboard
Steak
Wii Remote
Session 3- Independent Practice

You woke up this morning and are not feeling well. You have a sore throat and your stomach hurts. You feel sick!

Can you tell me what choice(s) you have?
Session 4- *Describe and Model*

The school bell just rang for lunch. Billy was hungry! He wanted something good to eat from the lunchroom. Billy decided he would order pizza and chocolate milk for lunch.

What choice did he make?

What choices does he have?
Session 4 - Guided Practice

The school bell just rang for lunch. You are hungry! You want something good to eat from the lunchroom.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Chicken with rice

Chicken sandwich

Pizza

Bean and Cheese burrito

Nachos

Distracters:

Stapler

Pencil

Doorknob

Tissue box

Vase
Session 4- Independent Practice

The school bell just rang for lunch. You are hungry! You want something good to eat from the lunchroom.

Can you tell me what choice(s) you have?
Session 5- Describe and Model

Derek’s favorite movie was playing. He wanted to go with his best friend Mark. He had been calling him all week but Mark did not answer the phone. Derek asked his mom if she would drive him to Mark’s house so that he can ask him to go to the movies.

What choice did he make?

What choices does he have?
Session 5- *Guided Practice*

You want to go to the movies this weekend. You are trying to reach your friend. You want to invite your friend to the movies.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Phone Call

Text Message

Facebook

Cellphone

Have someone drive you to his or her house to ask

Distractors:

French fries

Potato chips

Onion rings

Mozzarella Sticks

Jello
Session 5- Independent Practice

You want to go to the movies this weekend. You are trying to reach your friend. You want to invite your friend to the movies.

Can you tell me what choice(s) you have?
Session 6- *Describe and Model*

Maria was getting ready for school. It was winter and cold outside. Maria had to take the bus to school and she knew it was going to be cold outside. She wore a long sleeve shirt and jeans.

What choice did she make?

What choices does she have?
Session 6- Guided Practice

You are getting ready for school. It is winter and it is cold outside. You have take the bus to school and you know it will be cold outside.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Boots

Coat

Jeans

Sweats

Sweatshirt

Distracters:

Spider

Bubbles

Salt and pepper shaker

Night light

Bananas
Session 6- Independent Practice

You are getting ready for school. It is winter and it is cold outside. You have take the bus to school and you know it will be cold outside.

Can you tell me what choice(s) you have?
Session 7- *Describe and Model*

Paulina’s mom gave her extra money to get a snack from the school snack machine.

Inside the snack machine were different types of snacks. Paulina put a $1.00 in the machine. Paulina bought cheddar fries.

What choice did she make?

What choices does she have?
Session 7 - Guided Practice

Your mom gave you extra money today to get a snack from the school snack machine.
The snack machine has a lot of snacks. You put a $1.00 in the machine and choose a snack.

Can you tell me if this choice would work? Yes or no?
Why would this choice work or not work?

Still Picture Photographs:
Related Pictures:
Chips
Pretzels
Hot fries
Gummy worms
Honey bun
Distracters:
Piece of paper
Chair
Napkin
Leaves
Electrical cord
Session 7- *Independent Practice*

Your mom gave you extra money today to get a snack from the school snack machine. The snack machine has a lot of snacks. You put a $1.00 in the machine and choose a snack.

Can you tell me what choice(s) you have?
Session 8- *Describe and Model*

Gemma’s brother Austin had a job interview at Starbuck’s. She helped him find an outfit to wear. Gemma helped him pick a nice dress shirt, and dress pants for his interview.

What choice did she make?

What choices does she have?
Session 8 - Guided Practice

Your brother has a job interview at Starbuck’s. You are helping him pick out an outfit to wear. You know he really wants to work at Starbuck’s.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Slacks/ Dress Pants
Nice Blouse/ Shirt
Comb your hair/ Style
Dress socks
Shave/ Deodorant

Distractors:

Candle
Cup
Plate
Forks
Spoons
Session 8- *Independent Practice*

Your brother has a job interview at Starbuck’s. You are helping him pick out an outfit to wear. You know he really wants to work at Starbuck’s.

Can you tell me what choice(s) you have?
Session 9- Describe and Model

Valerie saw her best friend at lunch who is a cheerleader. It was Valerie’s sophomore year in high school and she really wanted to play in a sport. She asked the cheerleading coach if she could tryout.

What choice did she make?

What choices does she have?
Session 9- *Guided Practice*

You saw your best friend at lunch who is a cheerleader. It was your sophomore year in high school and you really want to play in a sport. You want to tryout as soon as you can.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

- Play soccer
- Play baseball
- Swim team
- Cheerleader/ Football player
- Play basketball

Distracters:

- Cup
- Fan
- Dog bone
- Light bulb
- Electrical outlet
Session 9- *Independent Practice*

You saw your best friend at lunch who is a cheerleader. It was your sophomore year in high school and you really to play in a sport. You want to tryout for a sport.

Can you tell me what choice(s) you have?
Session 10 - Describe and Model

Montana had a math test on Friday. Montana had to get a good grade, so she could have her friend come over. She decided to study using her math flash cards.

What choice did she make?

What choices does she have?
Session 10- *Guided Practice*

You have a math test on Friday. You do not like math. You have to get a good grade, so you can have your friend come over.

Can you tell me if this choice would work? Yes or no?

Why would this choice work or not work?

Still Picture Photographs:

Related Pictures:

Practice/ study math problems

Help from teacher

Help from mom

Help from dad

Help from sibling

Distracters:

Three-hole punch

Basket

Calendar

Pen

Punch bowl
Session 10- *Independent Practice*

You have a math test on Friday. You do not like math. You have to get a good grade, so you can have your friend come over.

Can you tell me what choice(s) you have?
APPENDIX M

PROCEDURAL FIDELITY CHECKLIST FORM
Procedural Fidelity Checklist Form

Teacher: ____________________________  Session #____________________

Observer: __________________________ Date: ______________________

Condition: Choice-Making Training Scenarios

Observer signature: __________________________________________________

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure the recorder button is pushed and the training is being</td>
<td></td>
<td></td>
</tr>
<tr>
<td>recorded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell the student what he/she will be engaging in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduces choice-making training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduces choice-making scenarios</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reads choice-making scenario</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitates student by prompting/cueing student with questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allows student to identify five possible choices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scribes/records student responses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX N

PERMISSION FOR SCHOOL PARTICIPATION
Brett Campbell, Ph.D.
Coordinator III
Research Department
Assessment, Accountability, Research, and School Improvement Division
Clark County School District
4260 Eucalyptus Avenue, Annex C
Las Vegas, NV 89121-5207

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear Dr. Campbell:

This letter will acknowledge that I have reviewed a request by Dr. Tom Pierce and Shannon L. Sparks to conduct a research project entitled, Increasing Choice-Making and Choice Awareness for Students with Intellectual Disability at Foothill High School, Henderson, Nevada.

When the research project has received approval from the University of Nevada, Las Vegas Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Foothill High School, Henderson, Nevada. I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the Department of Research at 799-5195.

Sincerely,

[Signature]
Signature of Principal/Division/Department Head

[Date]

Jeanne Donadio 11-05-12
Print Name and Title
APPENDIX O

SOCIAL VALIDITY QUESTIONNAIRE
Social Validity Questionnaire

Teacher: ________________________________

Date: ________________________________

Directions: Please read the following statements and indicate by circling the number that best reflects your feelings regarding the choice study.

Condition: Choice training

1. (strongly agree), 2. (agree), 3. (somewhat agree) 4. (disagree)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Choice awareness is important teach</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(2) Methods and procedures were easy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(3) Increase student choice-making abilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4) Choice-making training was time-friendly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4) Increased student choice awareness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(5) Enabled students to identify choice-making options</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(6) Useful delivery of choice instruction</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(7) Post-study research in choice-making should continue</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
REFERENCES


Cote-Sparks, S., & Cote, D. (2012). Teaching choice making to elementary students with mild to moderate disabilities. *Intervention in School and Clinic, 47*(5), 290-296.


VITA
Graduate College
University of Nevada, Las Vegas
Shannon Lynn Sparks

Degrees:
Bachelor of Science, Special Education, 2006
University of Nevada. Las Vegas

Master of Education, Special Education, 2007
University of Nevada. Las Vegas

Special Honors and Awards:
Phi Kappa Phi Honor Society, Present

Deans Honor List, University of Las Vegas, Nevada, Present

Distinguished Service Award, Clark County School District, 2009

RAVE Review, Coronado High School District- Henderson, NV

Nominated for Clark County District Teacher of the Year
Coronado High School, Clark County School District- Henderson, NV, 2006

Publications:
Cote, D., Jones, V., Sparks, S., & Aldridge, P. (In press). Designing transition programs for culturally and linguistically diverse students. Multicultural Education.


Dissertation Title: Increasing Choice Making and Choice Awareness for Students with Intellectual Disability.
Dissertation Examination Committee:
    Chairperson, Dr. Thomas Pierce, Ph. D.
    Committee Member: Dr. Kyle Higgins, Ph. D.
    Committee Member, Dr. Susan Miller, Ph. D.
    Graduate Faculty Representative, Dr. Richard Tandy, Ph. D.