5-3-2017

Enhancing the Conversational Skills of College Students with Intellectual Disabilities Through Explicit Instruction Using Role-Play

Jason David Robinson

Follow this and additional works at: http://digscholarship.unco.edu/dissertations
UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

ENHANCING THE CONVERSATIONAL SKILLS OF COLLEGE STUDENTS WITH INTELLECTUAL DISABILITIES THROUGH EXPLICIT INSTRUCTION USING ROLE-PLAY

A Dissertation Submitted in Partial Fulfillment of the Requirements of the Degree of
Doctor of Philosophy

Jason David Robinson

College of Education and Behavioral Sciences
School of Special Education
Special Education

May 2017
This Dissertation by: Jason David Robinson

Entitled: Enhancing the Conversational Skills of College Students with Intellectual Disabilities through Explicit Instruction using Role-Play

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in College of Education and Behavioral Sciences in School of Special Education

Accepted by the Doctoral Committee

_____________________________________________________
Tracy Gershwin Mueller, Ph.D., Research Advisor

_____________________________________________________
Robin Brewer, Ed.D., Committee Member

_____________________________________________________
Lori Peterson, Ph.D., Committee Member

_____________________________________________________
Michelle Athanasiou, Ph.D., Faculty Representative

Date of Dissertation Defense ________________________________

Accepted by the Graduate School

_____________________________________________________
Linda L. Black, Ed.D.
Associate Provost and Dean
Graduate School and International Admissions
ABSTRACT


Social skill deficits can serve as barriers to the achievement of postsecondary transition goals among young adults with intellectual disabilities. In order to support this population of students with achieving their postsecondary transition goals, educators should enhance the social skills of students with intellectual disabilities in a manner that is generalizable across settings students are likely to encounter as young adults. The present study targeted conversational skills, crucial components of social interaction, through explicit instruction using role-play with three college students with intellectual disabilities. A multiple baseline across participants design was used in this study to examine the effectiveness of explicit instruction using role-play on enhancing participants’ conversational skills related to elaborating on responses and asking questions during conversations with peers as well as generalizing these skills across settings. For each participant, the mean frequency of both elaborating on responses and asking questions during conversations with peers increased during the intervention phase of this research study. Among all three participants, increases in mean frequency related to both elaborating on responses and asking questions during conversations with peers were also observed during generalization probes within campus dining halls. Results of this study suggest explicit instruction using role-play can enhance the conversational
skills of young adults with intellectual disabilities. In addition, providing instruction within social settings young adults with intellectual disabilities frequently encounter during their daily lives can enhance skill generalization related to recently acquired conversational skills. Specifically, results of this study suggest that providing instruction within naturalistic settings facilitates students’ generalization of social skills through access to naturally occurring reinforcement contingencies. This dissertation presented strategies including explicit instruction and role-play provided within naturalistic settings in order to increase student engagement and instructional relevance during social skills instruction.
DEDICATION

This dissertation is dedicated to my wife, Dina, and son, Keegan. Dina, I couldn’t have completed this dissertation without your help and support. In addition, your commitment to community service and your own graduate studies inspired me throughout my doctoral program. Keegan, you have motivated me throughout my dissertation process. I hope that successfully completing my doctoral program inspires you to pursue your dreams in the future. Dina and Keegan, I love you both more than I can put into words. Thank you for all that you do.
ACKNOWLEDGEMENTS

Thank you to all of my family and friends for encouraging me during my doctoral program and supporting me during my dissertation process. I would like to especially thank my parents, brother, sister, niece and nephew. Mom, Dad, Josh, Megan, Rylee, and Jameson, thank you for inspiring me to pursue a career in higher education.

This dissertation would not be possible without my amazing advisor, Dr. Tracy Mueller. Dr. Mueller, thank you for supporting me throughout my doctoral program. Working with you as a graduate assistant gave me the opportunity to move to Colorado and pursue graduate school on a full-time basis. Anytime I needed advice or guidance during my dissertation process, you were always available and willing to help. Thank you for being a fantastic advisor and mentor throughout my doctoral program.

I would also like to thank Dr. Michelle Athanasiou, Dr. Robin Brewer, and Dr. Lori Peterson for supporting me as members of my dissertation committee. Your unique insight allowed me to design a dissertation that correlated with my passion and professional goals related to the field of special education. I truly appreciate the time and energy you devoted to serving on my dissertation committee.

To the amazing students I worked with as part of my dissertation, each of you graciously sacrificed your valuable time to participate in this dissertation study. I truly appreciate your support during this study and hope each of you learned as much from me as I learned from you.
Finally, I would like to thank the Bresnahan-Halstead Center for generously awarding me a research grant to support me with this dissertation. In addition, I would like to thank Glen and Todd as well as the rest of the Margie’s Café family for their gracious donations and ongoing support throughout my dissertation process.
TABLE OF CONTENTS

CHAPTER

I. INTRODUCTION ........................................................................................................... 1

What are Social Skills? ................................................................................................. 2
Universal Goals of Social Skills Instruction .............................................................. 3
Social Skills and Postsecondary Transition Planning .............................................. 4
Statement of the Problem ............................................................................................ 7
Significance of the Study .............................................................................................. 8
Purpose of the Study ..................................................................................................... 9
Research Question ....................................................................................................... 11
Definition of Terms ..................................................................................................... 11
List of Acronyms ........................................................................................................ 14

II. REVIEW OF LITERATURE ......................................................................................... 15

Definition and Explanation of Intellectual Disability ............................................. 15
Scope, Sequence, and Structure of Literature Review .......................................... 16
Theoretical Perspective ............................................................................................... 17
Social Skill Instructional Strategies ......................................................................... 18

   Structured Teaching Interventions ...................................................................... 18
   Video Modeling Interventions ............................................................................ 23
   Behavioral Interventions .................................................................................... 26
   Developmental Interventions ............................................................................. 32
   Peer-Mediated Interventions ............................................................................. 36
   The Goal of Instruction ....................................................................................... 39

Social Skill Generalization Strategies ..................................................................... 41

   Teaching Loosely ................................................................................................. 41
   General Case Instruction ..................................................................................... 42
   Programming Common Stimuli ........................................................................... 44
   Inclusion in the General Education Setting ....................................................... 45
   Community-Based Instruction ............................................................................. 47
   The Goal of Skill Generalization ....................................................................... 50

Patterns and Trends within the Literature ............................................................... 51
LIST OF TABLES

Table
1. Facilitating Social Skill Generalization from Instructional to Naturally Occurring Settings. ................................................................. 51
2. Examples and Non-Examples of Elaborated Responses. .................................. 64
3. Research Study Procedure: Sequence of Phases. ............................................. 70
4. Criteria used by Scruggs and Mastropieri (1998) to Evaluate Intervention Effectiveness using PND. ......................................................... 80
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Encouraging Desired Social Skills through Contact with Naturally Occurring Reinforcement Contingencies.</td>
<td>40</td>
</tr>
<tr>
<td>2.</td>
<td>Combined Participant Results Related to Elaborated Responses</td>
<td>81</td>
</tr>
<tr>
<td>3.</td>
<td>Combined Participant Results Related to Questions Asked</td>
<td>82</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Throughout US classrooms, students routinely ask their teachers questions such as, “Why do I need to learn this?” or, “When will I ever use this?” When these questions are asked during subjects such as algebra or social studies, teachers may struggle to come up with practical scenarios requiring students to demonstrate targeted skills outside of the classroom setting. When it comes to social skill instruction, however, the connection between skill application and everyday life can be much easier to describe. After all, whether or not students receive special education services, the development and maintenance of social skills is a crucial component of a student’s development (Webb, Miller, Pierce, Strawser, & Jones, 2004).

While academic instruction is critical to the educational experiences of all students, learning should not be confined to topics addressed within academic curriculums or even time students spend in the classroom. For example, activities such as eating lunch in the cafeteria, walking in the hallway between classes, and interacting with peers during extracurricular activities all represent learning opportunities for students to self-regulate their behavior in a manner consistent with social norms and expectations. Myles and Simpson (2001) include these social learning opportunities as part of a hidden curriculum that, while not explicitly taught in the school setting, address do’s and don’ts of everyday behavior critical to social development. Although components of the hidden curriculum are not typically included in academic curriculums, district learning
objectives, or state standards, their importance in the daily lives of students both inside and outside of the school setting warrants further inquiry of how social skills are acquired, maintained, and generalized by students.

**What are Social Skills?**

Social skills address a wide array of behaviors and, as a result, definitions of social skills can vary based on the application to individuals of different ages and with different learning needs. Nevertheless, a core component of social skills is that they facilitate positive interpersonal interactions (Rao, Beidel, & Murray, 2008). In other words, displaying social skills allow individuals to access reinforcement during social situations. Displaying social skills also allow an individual’s peers to access reinforcement (O’Handley, Ford, Radley, Helbig, & Wimberly, 2016). This is a crucial component of increasing the duration of social interactions as well as the frequency of future social interactions between an individual and his or her peers. In addition to accessing reinforcement, social skills also allow individuals to recognize and adapt to environmental cues present during social situations (Kearney & Healy, 2011). This allows individuals to modify their behavior accordingly and avoid aversive social situations (Johns, Crowley, & Guetzloe, 2005).

Social skills may include both verbal and non-verbal behaviors necessary for interpersonal communication (Rao et al., 2008). Examples of verbal social skills include introducing oneself in order to initiate conversations and relationships with peers (Morris, 2002). Verbal social skills also include asking and responding to questions during conversations with peers (Rao et al., 2008). Examples of non-verbal social skills include smiling and making eye contact during interactions with others (Rao et al., 2008). Non-
verbal social skills also include reading body language, displaying empathy, listening to others, and taking turns within social situations (Morris, 2002). A crucial component of social skills is that they are learned behaviors (Gul & Vuran, 2010). Social skills may be learned informally through observation and practice opportunities within naturally occurring situations. However, social skills can also be systematically taught and monitored within instructional settings (Avcioglu, 2013).

**Universal Goals of Social Skills Instruction**

John Dewey and Paulo Freire emphasized the importance of linking skills learned in the classroom with practical, every day events students are likely to encounter during their every daily lives (Ralston, 2011). This implicit curriculum advocated for by Dewey and Freire emphasized the need for students to think critically and problem solve within complex and practical contexts and situations (Au, 2012). In other words, skill mastery requires students to not only demonstrate skills learned in the classroom but to do so in authentic settings relevant to their current lives. In order to accomplish this level of mastery, students with intellectual disabilities (ID) must be given opportunities to generalize skills learned in the classroom to relevant, daily situations within their schools and local communities.

Both the topics of social skill instruction as well as the manner in which they are covered vary considerably based on student strengths and learning needs. However, in correlation with Dewey and Freire’s implicit curriculum, a universal component of social skill instruction for students with ID involves enhancing the ability of this population of students to respond appropriately to variations within their environments (Kearney & Healy, 2011). In other words, social skills instruction requires students with ID to both
demonstrate specific social skills across settings as well as discriminate between when and where to demonstrate these skills.

Another universal component of social skills instruction is the purposeful selection of skills targeted for instruction in correlation with the philosophy of applied behavior analysis. The philosophy of applied behavior analysis is to produce meaningful changes in behaviors that are socially significant in order to enhance student opportunities as well as overall quality of life (Vanselow, Thompson, & Karsina, 2011). Although applied behavior analysis is commonly associated with students engaging in problem behaviors, this philosophy of behavior can be used to identify, define, and address all behaviors of social importance among all students with and without disabilities (Woods, Miltenberger, & Carr, 2006). In other words, educators should always consider two components of social skills prior to implementing social skill instruction with their students. First, educators should consider whether or not students would have opportunities to demonstrate learned social skills outside of the instructional setting. Second, educators should consider whether or not the demonstration of learned social skills would allow students to access reinforcement outside of the instructional setting. Social skills that meet each of these universal criterion are deemed socially significant and, as a result, worthy of addressing during social skills instruction.

Social Skills and Postsecondary Transition Planning

Unfortunately, students with ID have historically had fewer opportunities following high school graduation compared to their peers. Specifically, unemployment among young adults with ID has been a consistent problem within the United States in recent history. In 1983, the U.S. Commission on Civil Rates estimated that approximately
75% of adults with ID experienced unemployment (Cimera, Burgess, & Bedesem, 2014). However, several other studies estimated that the actual rate of unemployment among adults with ID was closer to 90% (Cimera et al., 2014). With this in mind, the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA) required school districts to provide transition services to students receiving special education services by the age of 14. This was later revised through the 2004 reauthorization of IDEA to require that school districts provide transition services to students receiving special education services by age 16. The goal of these transition services was to adequately prepare students with disabilities to secure and maintain employment opportunities following their graduation from high school (Cimera et al., 2014).

The 2004 reauthorization of IDEA further addressed limited postsecondary opportunities provided to young adults with disabilities. Within this legislation, transition services were defined as a coordinated set of supports provided to students receiving special education services. These supports are intended to increase academic and functional achievement in the school setting and ultimately contribute to the achievement of customized postsecondary goals and objectives for students with disabilities (Shogren & Plotner, 2012). Federal legislation also requires school districts to develop measurable postsecondary transition goals for students receiving special education services by the age of 16. In addition, an emphasis is placed on parent involvement; consideration of student strengths, interests, and preferences; and a customized set of strategies and supports in accordance with the postsecondary goals of individual students and their families.
For transition-age students with ID, social skill instruction is a common component of the customized strategies and supports outlined in federal legislation above (Bilias-Lolis, Chafouleas, Kehle, & Bray, 2012; Alwell & Cobb, 2009). One reason for this is that, within the school setting, social skill deficits often manifest into problem behaviors that limit inclusionary opportunities among students with ID (Bilias-Lolis et al., 2012). This is concerning since inclusionary opportunities enhance the social skill development of high school students with intellectual disabilities (Hughes et al., 2011). Unfortunately, deficits related to social skill development do not disappear over time. Instead, deficits in social skill development often serve as barriers to postsecondary educational and employment opportunities for young adults (Alwell & Cobb, 2009). If members of a student’s individualized education planning team determine that social skill instruction is required for the student to make progress towards and ultimately achieve postsecondary transition goals following high school graduation, this must be addressed within the student’s postsecondary transition plan under IDEA.

To summarize, the Individuals with Disabilities Education Act requires educators to provide social skill instruction if it is needed to provide access and facilitate achievement within the general education classroom and curriculum as well as local community among students receiving special education services. Students with ID frequently experience challenges with social skills and, as a result, this population of students often receives explicit skill instruction related to this area as part of a holistic educational experience (Hughes et al., 2011). Since social skills are linked with the achievement of postsecondary goals, providing quality social skill instruction to
transition-age individuals with ID is a critical component of the time they spend in the school setting.

**Statement of the Problem**

Shogren and Broussard (2011) interviewed seventeen adults with ID and found that independent living and employment were universal goals among individuals interviewed. This finding is further supported in a study conducted by Nord, Luecking, Mank, Kiernan, and Wray (2013) that found most individuals with ID list employment and economic independence as personal goals. Unfortunately, a 2004 report from the President’s Committee for People with Intellectual Disabilities stated that approximately 90% of employment-aged individuals with ID are unemployed. Among those who are employed within this population, many are employed within segregated employment settings such as sheltered workshops as opposed to inclusive workplaces (Allen, Burke, Howard, Wallace, & Bowen, 2012). Dyke, Bourke, Llewellyn, and Leonard (2013) state that students with ID are also more likely than their peers to continue living with their parents following high school graduation.

Current research and federal legislation emphasize the importance of social skill instruction when meeting the learning needs of students with ID. However, this population of students continues to experience limited access to their local communities and achievement towards their postsecondary goals following high school graduation. Some individuals may attribute limited achievement and opportunities to intellectual functioning and adaptive behavior deficits, both of which are characteristics of the term ‘intellectual disability’ (Schalock & Luckasson, 2013). However, this explanation lacks merit when applied to postsecondary opportunities among this population of students.
Social deficits are more likely to contribute to loss of employment than deficits related to skill level or performance (Webb et al., 2004). Since postsecondary employment is a common goal among students with ID and a common prerequisite to independent living, it is clear that additional research must investigate evidence-based practices for addressing social skills necessary for facilitating the postsecondary goals of this population of students.

**Significance of the Study**

This study is significant for several reasons. First, conversational skills are crucial prerequisites to meaningful interactions with peers (Weiner, 2005). For adolescents and young adults with ID, developing conversational skills enhances their ability to establish and maintain friendships as well as express themselves to others within school, community, and employment settings (Waller, 2006). With this in mind, conversational skills targeted in this research study are likely prerequisites to more complex or higher-level social skills targeted in related studies. Since conversational skills are inherent components of social skills, the interventions used to enhance social skills within this study may be applicable to similar studies.

Second, this study measured conversational skill performance in a naturally occurring setting similar to settings participants are likely to encounter during their daily lives. Specifically, data for this study were collected during “Coffee Talk,” events offered approximately three times each week designed to promote social interaction among students on campus. “Coffee Talk” events provided free coffee and breakfast to attendees, took place in an academic building on campus, and were open to all undergraduate and graduate students attending the same university as participants within
this research study. Collecting data in a naturally occurring setting as opposed to a contrived setting does not inherently enhance the reliability of data obtained through this study. However, it does suggest that (a) results obtained through this research study are indicative of participant social skills demonstrated outside of this research study; and (b) conversational skill growth demonstrated within this study may generalize to similar settings and situations outside the realm of this research study.

Third, the intervention phase of this research study utilized evidence-based instructional practices that can be replicated within future research studies as well as by educators working with adolescents and young adults with ID. The 2004 reauthorization of IDEA does not directly stipulate the requirements of postsecondary transition planning (Shogren & Plotner, 2012). This means that, although students receive social skill instruction within the school setting, the type, focus, and specificity associated with this instruction may vary considerably. Evidence-based instructional practices within this research study included explicit instruction using role-play, customized instruction based on participant recreational interests, and instruction provided within campus and community settings participants frequently encountered during their college experiences. Incorporating these evidence-based practices into this research study was designed to maximize instructional relevancy and participant engagement during social skills instruction.

**Purpose of the Study**

The purpose of this study was to investigate the effectiveness of explicit instruction using role-play on the conversational skills of college students with ID within relevant, naturally occurring settings. Specifically, instruction during the intervention
phase of this research study addressed the skills of elaborating on responses and asking questions during conversations with peers with the goal of enhancing the duration of conversations as well as increasing future social interactions with peers. Elaborated responses and asking questions during conversations were dependent variables in a similar study conducted by Koegel, Park, and Koegel (2014) that investigated conversational skills among individuals with autism spectrum disorder (ASD). However, this study differed from the study conducted by Koegel, Park, and Koegel (2014) in two important ways. First, rather than addressing conversational skills among children and adolescents with ASD, this study addressed conversational skills among young adults with ID enrolled in a postsecondary university program. Second, rather than measuring elaborated responses and asking questions during one-on-one, semi-structured conversations, these variables were measured while participants conversed naturally with their peers during “Coffee Talk.” During these observation sessions, participants were free to converse with anyone in the room and, with the exception of the principal investigator (PI), data collectors, and participants themselves, all “Coffee Talk” attendees were naïve to the scope and sequence of this research study.

Two essential components of this study were efforts to promote skill generalization and skill maintenance related to participant conversational skills targeted for instruction. Skill generalization is not an inherent component of skill instruction, and, as a result, considering skill generalization is an integral component of social skills interventions (Miller, Fenty, Scott, & Park, 2011). Within this study, skill generalization was encouraged through the use of community-based instruction. Specifically, instruction related to the conversational skills targeted within this study was provided within campus
and community settings participants encountered on a daily basis. These settings included campus academic buildings as well as restaurants and coffee shops located within walking distance of campus. Skill maintenance was encouraged through the use of a self-monitoring component within the intervention package provided to participants. Specifically, participants tracked the frequency with which they asked questions during their time in “Coffee Talk.” Self-monitoring strategies such as the one used in this study have proven to be effective strategies for facilitating behavior change over time (Coughlin, McCoy, Kenzer, Mathur, & Zucker, 2012). Within this study, generalization probes were conducted within campus dining halls. The goal of these generalization probes was to assess whether or not participant conversational skills acquired during the intervention phase of this research study generalized to non-instructional settings participants encountered on a daily basis following the intervention phase of this research study.

**Research Question**

In keeping with the purpose of this study outlined in the section above, the following research question guided this study:

Q1 What is the effect of explicit instruction using role-play provided within naturalistic settings on elaborated responses and questions asked during conversations with peers among college students with intellectual disabilities?

**Definition of Terms**

*Applied Behavior Analysis:* The application of scientifically derived behavioral principles designed to produce socially significant behavioral change in order to enhance client opportunities and overall quality of life (Vanselow, Thompson, & Karsina, 2011).
Bandura’s Social Learning Theory: Social interaction is an inherent component of the learning process and, as a result, incorporating social interaction into classroom instruction enhances the social relevance and overall effectiveness of instruction (Deaton, 2015).

Community-Based Instruction: Instruction provided in natural, realistic environments; shown through research to support the acquisition of social skills necessary for life after high school among adolescents and young adults with disabilities (Kamens, Dolyniuk, & Dinardo, 2003).

Errorless Learning: Minimizing or eliminating opportunities for errors with the goal of facilitating greater learning outcomes (Kern et al., 2005).

General Case Instruction: Including multiple teaching examples during instruction to address potential variations within the natural environment; demonstrated to be an effective strategy for promoting skill generalization (Bolton & Mayer, 2008).

Hidden Curriculum: Curriculum not explicitly taught in the school setting that address the “do’s and don’ts” of every day behavior (Myles & Simpson, 2001).

Inclusion: Opportunities for students with disabilities to engage in meaningful interactions with their peers without disabilities within the school setting. Inclusion is a critical component of quality of life among students with ID (Murphy, 2009).

Intellectual disability (ID): Significant limitations related to both intellectual functioning and adaptive behavior. These limitations are expressed in social, conceptual, and adaptive skills (Schalock & Luckasson, 2013).
**Postsecondary Transition Planning:** A coordinated set of supports provided to children receiving special education services. These supports are intended to increase academic and functional achievement in the school setting and ultimately contribute to the achievement of customized postsecondary goals and objectives for students with disabilities (Shogren & Plotner, 2012).

**Programming Common Stimuli:** Incorporating features of natural settings within instructional settings; used to promote skill generalization across settings (Mesmer, Duhon, & Dodson, 2007).

**Self-Monitoring:** A self-management strategy that involves an individual recording occurrences of specific target behaviors; demonstrated to be an effective strategy for facilitating behavior change over time (Coughlin et al., 2012).

**Skill Generalization:** Occurs when an individual displays a skill learned in an instructional setting within non-instructional settings; skill generalization is not an inherent component of instruction and, as a result, must be programmed into skill instruction (Smith & Gilles, 2003).

**Skill Maintenance:** Occurs when an individual displays a skill learned during instruction after instructional conditions have been removed; involves the skill targeted during instruction coming into contact with natural contingencies of reinforcement (Marzullo-Kerth, Reeve, Reeve, & Townsend, 2011).

**Social Skill:** Verbal or non-verbal behavior that facilitates interpersonal communication and, in the process, encourages positive social interactions (Rao, et al., 2008).
Teaching Loosely: The variation of non-critical components of social skill instruction.

Teaching loosely is a crucial component of skill generalization (Alber-Morgan, Hessler, & Konrad, 2007).

**List of Acronyms**

*ASD:* Autism Spectrum Disorder

*FCT:* Functional Communication Training

*ID:* Intellectual Disability

*IDEA:* Individuals with Disabilities Education Act

*IOA:* Inter-Observer Agreement

*PI:* Principal Investigator

*PND:* Percentage of Nonoverlapping Data Points
CHAPTER II
REVIEW OF LITERATURE

Family members of children with ID describe the transition from high school to adulthood as the second most stressful experience, next to learning about their family member’s initial disability diagnosis (Dyke et al., 2013). During this stage in life, the individualized services provided in public schools covered under IDEA are no longer available. Compared to students receiving special education services under different eligibility categories, students identified with ASD and ID are less likely to obtain employment, access their local communities on a regular basis, and live independently (Dyke et al., 2013). Given the anxiety, uncertainty, and lack of opportunities for this population of students following their graduation from high school, it is crucial for students with ID to be provided with both the skills necessary for achieving their postsecondary goals, as well as meaningful opportunities to generalize these skills to practical every day settings within school and community settings. The purpose of this section is to review literature related to social skills, non-academic skills commonly addressed within postsecondary transition plans for students with ID, with the intent to synthesize current information within this area of study, as well as suggest directions for future practice.

Definition and Explanation of Intellectual Disability

Schalock and Luckasson (2013) defined the term ‘disability’ as a factor that can limit independent functioning and, as a result, can attribute to a disadvantage for an
individual person within a specific social context. From an educational perspective, the terms “intellectual disability” and “cognitive disability” refer to individuals with significant support needs that require special education services and supports to make meaningful progress within the school setting. Schalock and Luckasson (2013) cite the American Association about Intellectual and Developmental Disabilities when defining the term ‘intellectual disability.’ They defined this term as significant limitations related to both intellectual functioning and adaptive behavior. These limitations are expressed in social, conceptual, and adaptive skills. According to the American Community Survey, a cognitive disability is defined as a physical, mental, or emotional condition that results in a significant difficulty when concentrating, remembering, or making decisions (Nord et al., 2013).

**Scope, Sequence, and Structure of Literature Review**

Several online databases including ERIC, ProQuest, JSTOR, Education Source, and Psych Info were used to gather valid, reliable, and peer reviewed research related to social skill instruction for students with ID. Only peer-reviewed research studies published during or after 2000 were included in this literature review. Studies addressing social skill interventions through clinical or medical interventions were excluded. Instead, this literature review summarizes, analyzes, and synthesizes classroom-based intervention strategies for meeting the needs of students with ID related to social skill instruction.

This literature review begins with an overview and description of instructional strategies used to provide social skill instruction to adolescents and young adults with ID. Next, strategies for supporting adolescents and young adults with ID with maintaining social skill growth and generalizing newly learned social skills across settings and
situations are discussed. An overview of issues and trends pertaining to social skill instruction follows that synthesizes research on the topic. Based on these issues and trends, addressing social skill generalization across practical, every day settings is identified as a topic worthy of future research. This literature review concludes with implications for future practice based on issues and trends prevalent within current research related to social skill instruction for adolescents and young adults with intellectual disabilities.

Theoretical Perspective

Students who receive special education services often require customized social skill interventions to supplement academic instruction, enhance social interaction with their peers, and promote autonomy within the school setting. While these interventions might involve the support of teachers and parents, the goal of all social skill interventions is to gradually decrease the need for these external supports and increase the autonomy of students with ID. However, effectively using these skills within the local community requires students with ID to both generalize learned skills across settings as well as discriminate between appropriate and inappropriate contexts and situations in which to demonstrate these skills. Targeted social skill instruction is undoubtedly a crucial component of instruction for students with ID. However, for this instruction to truly enhance community access and opportunity for this population of students following high school graduation, students with ID must be given ample opportunities to discriminate among and generalize across settings when demonstrating mastery of social skills.

Targeted social skill instruction does not sufficiently meet the learning needs of students with intellectual disabilities. Instead, targeted skill instruction should be the first
step of a comprehensive plan to teach, practice, discriminate among, and generalize across practical, every day settings and situations this population of students is likely to encounter during their daily lives as young adults. The goal of this literature review is to identify strategies for teaching social skills as well as facilitating social skill maintenance and generalization in order to maximize achievement and opportunities for students with ID.

**Social Skill Instructional Strategies**

Social skill deficits among students with ID become increasingly apparent during high school (O’Handley et al., 2016). In order to support adolescents and young adults with ID during this time, educators often implement social skill instructional strategies designed to supplement academic instruction and enhance holistic skill development within the classroom setting (Vlachou & Stavroussi, 2016). These social skill instructional strategies are designed to address social skills necessary for peer relationships within the school settings as well as within community, employment, and postsecondary educational settings during life after high school. While the scope and sequence of interventions for addressing social skills with students with ID vary, the following five approaches are commonly found in relevant research: structured teaching, video modeling, behavioral, developmental, and peer-mediated interventions (Walton & Ingersoll, 2013). Each of these approaches is described in detail in the sections below.

**Structured Teaching Interventions**

Since students with ID often do not develop social skills at the same rate as their typically developing peers, explicit social skill instruction through structured teaching interventions is a common component of instruction provided to this population of
students (Walton & Ingersoll, 2013). The scope and sequence of skills targeted for instruction through structured teaching interventions varies based on the age, learning needs, and postsecondary transition goals of adolescents and young adults with ID. However, regardless of the specific social skills targeted through structured teaching interventions, task analyses and chaining, social stories, modeling, role-play, errorless learning, and environmental manipulations are common components of this process.

**Task analyses and chaining.** Individuals without social skill deficits often display social skills such as initiating and maintaining conversations with peers, collaborating with co-workers, and expressing feelings and emotions to friends and family members without thinking of each individual sub-skill associated with these behaviors. However, when teaching individuals with social skill deficits, each component of the social skills above must be addressed in order to foster skill mastery (Allsopp, Santos, & Linn, 2000). Due to the complex and multi-faceted nature skill of social skills significant to adolescents and young adults with ID, educators often use task analyses and chaining in order to support this population of students with acquiring and independently demonstrating social skills targeted during instruction.

Conducting a task analysis involves breaking a complex task down into simpler, more manageable steps and typically consists of two parts (Wolfe, Condo, & Hardaway, 2009). First, an educator either performs the task targeted for instruction him or herself or observes as an individual who has already mastered the task completes the specific task. Next, the educator documents each separate component of the skill (Scott, Collins, Knight, & Kleinert, 2013). During social skills instruction, task analyses are designed to support students with both acquiring and autonomously performing social skills targeted
for instruction (Allsopp, Santos, & Linn, 2000). When using a task analysis, students with ID can refer to a visual schedule or written task of steps associated with a specific social skill (Parker & Kamps, 2011). This schedule or list can be faded over time as students gradually develop mastery of individual steps associated with these skills.

Chaining links steps of social skills together and, in the process, fosters a deeper understanding of the task as a whole. Each component of a chain represents a distinct component of a particular skill that, while unique, is a necessary component of successfully completing the task as a whole (VanDerHeide & Newell, 2013). If a student struggles to complete a step in the chain, prompts and supports can be added to facilitate successful completion of both the individual step of the chain as well as the entirety of the chain (Jerome, Frantino, & Sturmey, 2007). These prompts and supports can eventually be faded as students master individual steps of a chain as well as fluently complete the chain itself. Making social skill instruction more manageable through chaining allows teachers to enhance the clarity of their instruction as well as the engagement of their students with ID during social skill acquisition.

Social stories. While explicit instruction can be presented in a variety of formats, social stories represent a common form of presenting and sharing this information with students with ID. When using social stories to target social skills for students with intellectual disabilities, the main idea, characters, and outcome of social stories can be modified based on the specific social skills being addressed as well as the unique learning needs of students (Reynhout & Carter, 2006). Social stories involve taking skills explicitly taught in the classroom setting and applying them to practical, every day situations in narrative form (Scattone, Tingstrom, & Wilczynski, 2006). This supports
students with ID with generalizing skills learned in the classroom setting to settings that require these skills within the school and local community.

**Modeling.** Another component of explicit instruction involves modeling what social skills targeted for instruction look like as well as when and where to demonstrate these skills across settings (Myles & Simpson, 2001). When modeling social skills, teachers demonstrate both examples and non-examples of targeted social skills. This allows students with intellectual disabilities to discriminate between appropriate and inappropriate social skills (Allsopp, Santos, & Linn, 2000). While the teacher can model desired social skills, another effective component of modeling is reinforcing students for engaging in desired social behaviors consistently within the classroom setting (Morris, 2002). This allows students with ID to better understand expected social behaviors. It also links reinforcement with specific pro-social behaviors and, in the process, makes engaging in these pro-social behaviors more reinforcing in the school setting.

**Role-play.** Role-play is often used when explicitly teaching social skills to students with intellectual disabilities. During role-play, students are provided with specific roles to play given a particular context or situation (Borbely, Graber, Nichols, Brooks-Gunn, & Botvin, 2004). This provides students with ID with multiple opportunities to engage in the targeted social skill as well as receive immediate feedback regarding their performance (Gutman, Raphael-Greenfield, & Rao, 2012). Role-playing can occur between students with ID and their teachers or between students with ID and their peers (Allsopp, Santos, & Linn, 2000). Regardless of the approach used, the goals of role-play include providing opportunities to practice and generalize social skills, differentiating the use of social skills based on setting and situation, and bringing students
with ID into contact with naturally occurring reinforcement through social attention from both peers and adults within the school setting.

**Errorless learning.** Errorless learning is based on the principle that errors during the learning process hinder, rather than enhance, the acquisition of skills being learned (Kern et al., 2005). In other words, minimizing or eliminating opportunities for errors leads to greater learning outcomes. Errorless learning is commonly accomplished by breaking tasks down into smaller, more manageable components; modeling successful completion of tasks prior to asking the student to complete the task; providing prompts during the learning process; and immediately correcting errors if and when they occur (Clare & Jones, 2008). Errorless learning is a common teaching procedure used in early childhood settings when initial skill acquisition is a common component of daily instruction (Vladescu & Kodak, 2010). However, because errorless learning enhances the pace of instruction and frequently brings the learner into contact with reinforcement, it can be effectively implemented as a communication and social skill teaching strategy for adolescents and young adults with ID as well.

Applying errorless learning to social and communication skill instruction involves providing students with ID with immediate prompts during the teaching process. The number of prompts is determined based on the performance and needs of students with ID as perceived by their teachers or service providers. As students make progress, these prompts are gradually faded since they are no longer needed. The rationale behind errorless learning is that, rather than delaying feedback and allowing students with ID to develop poor habits pertaining to communication and social interaction, errorless learning
allows students with intellectual disabilities to quickly modify their communication and social interaction skills as well as practice correct forms of these skills.

**Structured teaching interventions: summary.** Explicitly teaching social skills involves manipulating the teaching environment before, during, and after students with ID demonstrate desired social skills. Before students demonstrate desired social skills, students are provided with direct instruction pertaining to these skills through task analyses, chaining procedures, and social stories. Next, teachers provide opportunities for students with intellectual disabilities to practice these skills within a variety of settings through modeling and role-play. In order to encourage students with ID to demonstrate desired social skills more often in the future, modeling and role-playing sessions should include consistent and sizeable reinforcement from peers and adults as well as immediate feedback to enhance the effectiveness of instructional sessions. Through structured teaching interventions and social reinforcement, students with ID associate meaningful relationships with teachers and peers with the social skills targeted during their daily instruction.

**Video Modeling Interventions**

Video modeling involves students with intellectual disabilities watching videos of themselves or others correctly performing skills targeted during instruction (O’Handley et al., 2016). Similar to the modeling and role playing interventions outlined above, video modeling provides students with ID frequent opportunities to practice correct forms of a skill, self-evaluate their performance related to the skill, and self-reflect on when and where to apply the skill within practical, every day situations (Spivey & Mechling, 2016). Video modeling facilitates fluency related to social skill acquisition among students with
ID for two reasons. First, since video modeling does not rely on complex teacher language to teach crucial social concepts, language and communication deficits common among this population of students do not impede instruction to the same degree as with traditional, direct instructional methods (Plavnick, Kaid, & MacFarland, 2015). Second, since students are able to see correct forms of desired social behaviors independent of teacher prompts and supports, this process facilitates autonomous acquisition and demonstration of social skills among students with ID (Plavnick et al., 2015).

Avcioglu (2013) investigated the effectiveness of video modeling while teaching three students between the ages of ten and eleven with ID to greet peers and adults they were familiar with within the school setting. In this study, video modeling involved participants watching videos of their peers greeting familiar peers and adults. Although each student did not demonstrate the skill of greeting familiar peers and adults during the baseline phase of the research study, each participant was able to do so with 100% accuracy within four instructional sessions. Participants continued to greet familiar peers and adults with 100% accuracy during generalization probes within their classroom as well as during monitoring probes that took place one, three, and four weeks after instructional sessions (Avcioglu, 2013). Nikopoulos and Keenan (2003) also used video modeling to teach social skills to students between the ages of nine and fifteen with ASD and ID. After watching videos of a model initiate play and engage in reciprocal play with the experimenter, four of the seven participants decreased the latency with which they initiated interactions with the experimenter and increased the duration of time they engaged in reciprocal play with the experimenter (Nikopoulos & Keenan, 2003).
Research related to the use of video modeling when addressing social skills has focused primarily on young children and individuals with ASD (Walton & Ingersoll, 2013). However, video modeling has also supported adolescents and young adults with ID with completing complex, multi-step independent living skills. Mechling, Ayres, Bryant, and Foster (2014) used video modeling to support three high school students with ID between the ages of fifteen and seventeen with multi-step cleaning tasks including cleaning an exercise bicycle, shampooing and vacuuming a rug, and cleaning kitchen counter surfaces. After watching videos of an adult model completing the tasks listed above, one participant was able to complete each of these tasks independently without additional interventions. The other two participants were able to independently complete each of the tasks outlined above through the video modeling intervention and an error correction procedure provided by the instructor (Mechling et al., 2014). In a study conducted with three young adults with ID between the ages of seventeen and twenty-nine, Horn et al. (2008) used video modeling to teach a ten-step task analysis related to washing clothes. After watching a video of a model completing the steps of the task analysis, two participants were able to complete each step of the task analysis without additional interventions. The third participant was able to complete each step of the task analysis through the video modeling intervention and a least-to-most prompting procedure (Horn et al., 2008). Since video modeling has supported adolescents and young adults with intellectual disabilities with demonstrating complex, multi-step independent living skills, future research is warranted to determine whether video modeling can also support this population of individuals with demonstrating complex, multi-step social skills.
Video modeling is an especially promising social skill intervention for adolescents and young adults with ID. Social skills needed to establish and maintain meaningful relationships with peers as adults are both multi-faceted and extremely complex. Video modeling allows students with ID to repeatedly observe correct forms of these skills in instructional settings. This allows these students to ask clarifying questions, practice, and receive feedback while emulating video models. In addition, video modeling enables learners to pause instruction in order to better understand specific components of complex social skills. Through video modeling, correct forms of social skills can be both learned in isolation as well as synthesized to engage in comprehensive social behaviors relevant to the postsecondary goals of students with ID.

**Behavioral Interventions**

Problem behaviors such as physical aggression, elopement, noncompliance, and self-injury often negatively impact the quality of life among adolescents and young adults with ID (McLaughlin & Carr, 2005). These problem behaviors do not occur in isolation. Instead, problem behaviors such as those outlined above are often used to access reinforcement within an individual’s environment. Using behavioral interventions to teach social skills consists of rendering problem behaviors ineffective, inefficient, and irrelevant (Renzaglia, Karvonen, Drasgow, & Stoxen, 2003). This is accomplished by giving adolescents and young adults alternative social skills for obtaining the reinforcement they previously obtained by engaging in problem behaviors. Functional communication training (FCT) and differential reinforcement, two behavioral interventions that both discourage problem behaviors and encourage desired social skills, are elaborated upon in the sections below.
**Functional communication training.** Functional communication training is based on the underlying belief that students engage in problem behaviors in order to communicate their wants, needs, feelings, and preferences to others (Durand & Merges, 2001). Functional communication training begins by collecting and analyzing data related to specific target behaviors in order to determine the functions of these problem behaviors. Next, alternative communication strategies are directly taught to students as alternatives to these problem behaviors (Chezan, Drasgow, & Martin, 2014). These alternative communication strategies meet the same functions as the problem behaviors displayed by students. However, they are socially acceptable as determined by educators and society at large. The goal of FCT is that, by providing students with socially acceptable strategies for communicating and interacting with others, the frequency by which they engage in problem behaviors will decrease and ultimately be eliminated altogether.

Functional communication training strategies are most successful when they allow individuals to obtain reinforcement more immediately and with less effort than through problem behaviors (Casey & Merical, 2006). With this in mind, FCT strategies that incorporate skills already within an individual’s skill repertoire are often effective strategies for encouraging social skills and discouraging problem behaviors. Davis, Fredrick, Alberto, and Gama (2012) adhered to this principle when using FCT to address escape-maintained problem behaviors displayed by three adolescents with emotional disturbances and moderate to severe ID. They found that, by teaching participants to use a break card to express their desire for a break, they were able to almost eliminate problem behaviors such as physical aggression, self-injury, eloping, and noncompliance.
A similar functional communication training intervention was also used with Karl, a sixth grader with ASD (Casey & Merical, 2006). After determining that the function of Karl’s self-injurious behaviors was escape from aversive tasks, Karl was taught to use functional communication training in the form of a hand gesture that signaled his desire to take a break. While Karl engaged in self-injurious behaviors approximately 3.5 times per class when the gesturing FCT intervention was not in effect, he stopped engaging in self-injury altogether during class periods when he was allowed to receive a brief break by gesturing. These results remained consistent during one-year and two-year follow-up observations.

A study conducted by Ringdahl et al. (2009) found a correlation between participant proficiency with a specific form of FCT and the frequency by which specific forms of FCT were used in place of problem behaviors. Indeed, similar to the FCT strategies above, FCT strategies utilizing speech and sign language that incorporate skills already within an individual’s skill repertoire often yield the most effective and immediate results. However, while functional communication training interventions such as those outlined above may be effective in the classroom setting, adolescents and young adults with intellectual disabilities often require strategies capable of generalizing across contexts and situations. Chezan et al. (2014) investigated the benefits of generalizable functional communication training strategies with adults with ID. Specifically, they conducted functional analyses to determine the functions of problem behaviors for three participants between the ages of twenty-three and thirty-two and, based on the functions of their problem behaviors, taught the participants alternative social and communication skills that allowed participants to access the reinforcement they previously obtained.
through problem behaviors. Chezan et al. (2014) were able to decrease problem behaviors such as property destruction, physical aggression, elopement, non-compliance, and self-injury by teaching participants to say or sign “please” and “I want to talk to you.” While these strategies may seem relatively simple, their effectiveness derived from the following three criteria: participants demonstrated proficiency with the strategies used, the strategies used were generalizable across settings and situations, and the strategies used allowed participants to access reinforcement without the need to engage in problem behaviors.

Mancil (2006) explains that a relationship exists between students with limited social interaction and communication skills and students that engage in problem behaviors in order to communicate wants and needs to others. When FCT is customized to the unique learning needs of this population of students, problem behaviors decrease and socially acceptable behaviors increase (Mancil & Boman, 2010). With this in mind, FCT provides students with the skills and strategies necessary to effectively and efficiently communicate with others in the school setting. In the process, problem behaviors become less relevant and, consequently, less frequently observed among this population of students within the school, home, and community settings.

**Differential reinforcement.** Differential reinforcement involves reinforcing forms of communication and social interaction that are alternatives to, or incompatible with, forms of communication and social interaction deemed as socially inappropriate based on social norms and expectations. Fiske et al. (2014) define differential reinforcement as the reinforcement of certain members of a response class but not others. In other words, reinforcement is provided when students engage in desired
communication and social interaction strategies but not when they engage in undesired
communication and social interaction strategies. When teaching social skills to students
with ID, differential reinforcement has shown to be a valid strategy for the long-term
acquisition of socially acceptable behaviors as well as diminished rates of socially
unacceptable behaviors.

For potentially dangerous behaviors such as physical aggression and eloping,
differential reinforcement allows educators to both maintain student safety while
simultaneously encouraging alternative social skills through immediate and consistent
reinforcement. Differential reinforcement was used to address physically aggressive
behaviors maintained by access to tangibles (preferred items) and attention (from peers
and adults) displayed by seven students with developmental disabilities between the ages
of seven and twelve (Athens & Vollmer, 2010). Participants were given longer, more
immediate access to more desirable reinforcers following socially acceptable forms of
social interaction and communication as determined by the researchers and delayed,
shorter access to less desirable reinforcers when they engaged in social interaction and
communication characterized by physical aggression. Athens and Vollmer (2010) found
that, by controlling for reinforcer preference, immediacy of reinforcer availability, and
duration of time spent with reinforcers, they could differentially reinforce and ultimately
increase occurrences of socially acceptable communication and social interaction while
decreasing communication and social interaction that included physical aggression.
Differentially reinforcing on-task behaviors immediately with teacher attention resulted
in a 72% decrease in elopement for Jackson, a seven year old with ASD in a study
conducted by Pennington, Strange, Stenhoff, Delano, and Ferguson (2012).
Differential reinforcement has also experienced success when implemented with adults with ID. In order to decrease hallway loitering and stealing behaviors displayed by Mary, a fifty-two year old with ID, Vogl and Rapp (2011) used differential reinforcement by providing preferred items and activities contingent on Mary remaining in her activity room and removing items from her cubby if they had been stolen. Instances of loitering and stealing stopped altogether by the end of the differential reinforcement intervention and were not observed during two-month and three-month follow-up observations. Travis and Sturmey (2010) used differential reinforcement to address delusional statements that prevented a twenty-six year old with ID from engaging in community-based vocational activities. By withholding attention following delusional statements and consistently providing attention following non-delusional statements, Travis and Sturmey (2010) were able to decrease delusional statements and maintain intervention results over a four-year period.

Research clearly establishes the need for social skill instruction in order to develop replacement behaviors to problem behaviors exhibited by students with ID. However, for students who have efficiently and consistently communicated and interacted with others through problem behaviors in the past, merely providing these students with replacement behaviors is not enough to decrease and eliminate problem behaviors from these students’ repertoires. Students need to understand that engaging in replacement behaviors during daily communication and interactions with others will provide them with their wants and needs more efficiently and consistently than engaging in problem behaviors.
Developmental Interventions

The research above supports the effectiveness of teaching social skills to adolescents and young adults with intellectual disabilities through structured teaching, video modeling, and behavioral interventions. However, for adolescents and young adults with ID to maintain and generalize social skills outside of the instructional setting, students must display these social skills independent of external prompts and supports provided by parents and teachers (Embregts, 2000). Achieving this level of independence involves enhancing developmental skills among students with ID that increase their independence and decrease their need for external supports. Developmental skills related to choice making, self-awareness, self-monitoring, and self-reflection are addressed and elaborated upon in the sections below.

Providing choices. Choice making skills are linked with communication and social interaction skills deemed appropriate by parents, educators, and social norms among students with ID (Shogren, Faggella-Luby, Bae, & Wehmeyer, 2004). Unfortunately, compared to their general education peers, students with ID are less frequently provided with opportunities to make choices and voice preferences within the school setting (Wehmeyer & Abery, 2013). Students lacking choice making skills or the opportunity to demonstrate these skills on a regular basis are likely to engage in problem behaviors in order to communicate needs and preferences to peers, parents, and educators (Rispoli et al., 2013). As a result, addressing choice making skills among students with intellectual disabilities can enhance desired social and communication skills necessary to interact with others within school, community, and employment settings.
A benefit to enhancing the choice making skills of students with ID is that, in addition to the social benefits outlined above, choice making skills can be easily embedded within academic and functional skill instruction. In other words, choice making skill instruction provides holistic instruction related to the academic, social, and independent living needs of adolescents and young adults with ID. Tasky, Rudrud, Schulze, and Rapp (2008) investigated the influence of choice related to the on-task behavior of three adults with traumatic brain injury during independent living instruction. Tasks included doing laundry, sweeping and vacuuming, exercising, writing in a journal, and bed-making. They found that, by allowing adults to choose which tasks they completed, adults engaged in on-task behaviors at higher levels than when self-care tasks were determined by their caregivers. This was even the case when the tasks participants were told to complete by caregivers were the same tasks as those they had chosen for themselves in the prior phase of the experiment. Stenhoff, Davey, and Lignugaris-Kraft (2008) found that giving a ninth grade student with a specific learning disability a choice between two similar academic tasks increased the percentage of the tasks he completed correctly as well as the total percentage of tasks he completed. Dixon and Tibbetts (2009) gave three adolescents with traumatic brain injury the choice of a small reinforcer for minimal task completion or a larger, variable reinforcer for greater levels of task completion. Although all participants initially chose the small, immediate reinforcer, they consistently completed greater levels of physical therapy task completion as the experiment continued in order to access the larger reinforcers.

In addition to serving as a crucial prerequisite to social skill development among adolescents and young adults with ID, choice making increases task completion and on-
task behavior across a broad spectrum of academic and independent living tasks. Specifically, the research above suggests that students are more likely to engage consistently in desired behaviors when they perceive that they have a choice regarding tasks they complete or reinforcers they work for. This is even the case when the tasks and reinforcers they choose are identical to the tasks and reinforcers chosen for them. Given the benefits associated with providing choice making opportunities outlined above, identifying frequent and authentic opportunities for adolescents and young adults with ID to demonstrate choice making skills is an effective method for addressing their holistic learning needs within instructional settings.

**Self-management.** Rusch and Dattilo (2012) describe self-management skills as crucial to postsecondary success because employment and community settings require individuals to self-regulate their own behavior. Students who struggle to self-regulate their behavior experience difficulty when collaborating with employees within employment settings and forming meaningful relationships with peers within social settings (Moore, Anderson, Glassenbury, Lang, & Didden, 2013). Self-management skills include self-monitoring, self-recording, self-reinforcing, and self-evaluating and are used in classroom settings to both increase desired behaviors and decrease non-desired behaviors (Moore et al., 2013). Wilkinson (2008) explains that, rather than prompting school success through the manipulation of environmental variables, developing self-management skills among students is both less restrictive and more generalizable to a variety of different settings and situations.

Technological innovations have the potential to increase self-management skills in a manner that is generalizable across community and employment settings. Kelley,
Test, and Cooke (2013) investigated the effectiveness of picture prompts provided through a video iPod on the navigational skills of individuals with ID engaging as pedestrians within their local communities. Kelley, Test, and Cooke (2013) found that none of the participants in the study were able to navigate any of the routes independently during the baseline phase and participants were only able to reach between 0% and 10% of the landmarks included in their directions. However, after being instructed on how to use digital pictures and directions provided on the video iPod, each participant was able to navigate all three of the previously taught routes using this tool and reached between 96% and 100% of landmarks included. In addition to these positive outcomes, generalization of this skill was demonstrated since three out of four participants included in this study were able to independently navigate an unfamiliar route with 100% accuracy. The other participant only needed one prompt and navigated from landmark to landmark with 70% accuracy.

Green, Hughes, and Ryan (2011) implemented a vibrating watch with a twenty-two year-old woman with ID that participated in a job internship at a campus library. She also took part in a two-year postsecondary education program on the campus that emphasized basic reading and math as well as social, independent living, and employment skills. Although the participant was approximately 9-15 minutes late to class after working at the library without access to the vibrating watch, she was only approximately 0-2 minutes late with access to the digital watch. When provided with the vibrating watch, she also relied less frequently on others to tell her when it was time to transition from work to class. By using a vibrating watch, this participant was able to
both increase her promptness to work as well as more autonomously transition from school to work.

Enhancing the self-management skills of adolescents and young adults with ID is important for two main reasons. First, self-management skills reduce external prompts and supports adolescents and young adults with ID require and, in the process, foster their autonomy and independence. Second, self-management skills generalize across settings and situations. Incorporating technological devices such as cell phones, iPods, and watches that be conveniently carried to and used within community settings increases the effectiveness of self-management interventions. Since these devices are commonly owned and utilized by students with and without disabilities, utilizing these devices to generalize self-management skills within the local community does not result in stigmatizing adolescents and young adults with ID within inclusive settings.

Peer-Mediated Interventions

The ultimate goal of communication and social skill instruction is to facilitate meaningful social interactions between students with their disabilities and their peers. With this in mind, it seems logical to assume that incorporating students’ peers in social skill interventions enhances the relevance of instruction and facilitates generalization of social skill instruction across settings and situations for students with ID. Social skills such as initiating and maintaining conversations with peers, working collaboratively with peers, demonstrating empathy, and resolving conflict are all social skills that can be effectively targeted through peer-mediated social skill interventions (Morris, 2002). During these instructional opportunities, students without disabilities served as models of appropriate communication and social interaction for students with disabilities to
emulate. In addition, natural reinforcement in the form of enhanced social interaction with peers reinforces desired social behaviors among students with disabilities.

The use of peer-mediated social skill interventions allows typically developing peers to facilitate social interaction between students with disabilities and their typically developing peers (Carter et al., 2016). Carter et al. (2016) conducted a study that compared the social interaction outcomes of students with severe disabilities including ASD and ID that participated in peer-mediated and educator-mediated interventions. Peer-mediated interventions consisted of typically developing peers modeling appropriate social interaction skills, initiating conversations and social interaction between participants and their typically developing peers, and sitting in close proximity to participants during class instruction. Students that received peer-mediated interventions made more progress toward social skill goals developed by participants’ special education teachers, developed more friendships with typically developing peers, and engaged in higher levels of social interaction with their typically developing peers compared to students that only received educator-mediated interventions (Carter et al., 2016). Carter Hughes, Guth, and Copeland (2005) investigated the effectiveness of a peer buddy system on the frequency of social interaction between high school students with intellectual disabilities and their typically developing peers. Peer buddies were typically developing peers that were enrolled in an elective course designed to promote social interaction between students with and without disabilities. When in the presence of a peer buddy, students with intellectual disabilities engaged in social interaction with peers during an average of 87% of observations across participants compared to only 62.5% when peer buddies were not present (Carter et al., 2005). Within this study, peer buddies...
that students with ID were familiar with served as liaisons between students with ID and typically developing peers. This allowed students with ID to expand their social networks as well as the frequency with which they interacted with their peers within the school setting.

A benefit to peer-mediated interventions is that, through collaboration, interventions can be developed and supervised by educators but implemented predominantly by peers. This facilitates interventions that are minimally stigmatizing and restrictive when supporting the social learning needs of adolescents and young adults with intellectual. Carter, Moss, Hoffman, Chung, and Sisco (2011) utilized collaborative sessions during which peers, a supervising paraprofessional, and the research study interventionist discussed strategies for increasing the involvement of three high school students with ID during class activities and during social situations with typically developing peers in their classrooms. Within inclusive settings, social interaction between participants and their peers increased through peer-mediated supports developed through collaboration sessions while on-task behaviors remained constant (Carter et al., 2011).

Hughes et al. (2011) investigated the benefits of peer-mediated interventions when enhancing conversational skills among five adolescents and young adults with ID between the ages of sixteen and twenty-one. Hughes et al. (2011) found that, by including typically developing peers as conversational partners during conversational skill instruction, social interaction between each participant and their typically developing peers increased from less than 1% of observation sessions to more than 96% of observation sessions within only 2-3 instructional sessions. Indeed, interventions facilitated through typically developing peers have the potential to increase the
acquisition of social skills among adolescents and young adults with ID as well as promote skill generalization through the provision of authentic social interaction opportunities between this population of students and their typically developing peers.

High school is a time when students with and without disabilities are increasingly motivated by social acceptance from their peers (Lyons, Huber, Carter, Chen, & Asmus, 2016). Peer-mediated interventions build upon these naturally occurring contingencies of reinforcement within the environment. In addition, generalization of social skills is often difficult to achieve (Smith & Gilles, 2003). Social skill instruction mediated by peers more closely resembles daily life as opposed to social skill instruction mediated by teachers and, as a result, encourages skill generalization more seamlessly. Despite teachers’ best efforts, the keys to forming meaningful peer relationships are often best understood by peers themselves (Chadsey & Han, 2005).

The Goal of Instruction

In accordance with the research of Albert Bandura, social interaction is an inherent component of the learning process (Deaton, 2015). Social learning allows students to imitate desired behaviors and skills exhibited by their peers (Zambo, 2006). It also allows students to access social attention from peers as a result of their actions. This facilitates the acquisition of skills taught in the classroom using a type of reinforcement consistent with naturally occurring contingencies for target skills and behaviors outside of the classroom setting. In other words, social learning fosters skill mastery through authentic reinforcement.

Figure 1 outlines the process by which Bandura’s social learning theory applies to the process by which students with ID receive instruction pertaining to social skills,
practice correct forms of these social skills, and develop mastery of these social skills through frequent opportunities for practice and contact with reinforcement across school settings. Structured teaching, video modeling, behavioral, developmental, and peer-mediated interventions all facilitate social skill development among students with ID through different methods. However, a universal goal of each of these approaches is to bring student displays of desired social skills into contact with naturally occurring reinforcement contingencies in the form of adult and peer attention. This reinforcement is essential for two reasons. First, social reinforcement increases future occurrences of desired social skills. Second, since this form of reinforcement is identical to the reinforcement students engaging in desired social skills receive in society at large, continued occurrences of desired social skills are encouraged following high school graduation among students with ID.

*Figure 1.* Encouraging desired social skills through contact with naturally occurring reinforcement contingencies.
Social Skill Generalization Strategies

The ultimate goal of social skill instruction is to provide adolescents and young adults with ID with the prerequisite skills and strategies necessary for consistent and meaningful interaction within inclusive settings as young adults. However, generalizing skills learned within the classroom to practical, every day situations does not occur automatically (Freeland & Noell, 2002). Instead, educators working with adolescents and young adults with ID must carefully plan for fostering skill generalization from the classroom to real-life contexts and situations. Teaching loosely, general case instruction, and programming common stimuli are three strategies for encouraging skill generalization. Each of these strategies is introduced and elaborated upon within the sections below. In addition, strategies for generalizing social skills within the general education and community settings are also addressed in the sections below. The goal of each of these strategies is to maximize the effectiveness of social skill instruction by enhancing the consistency and efficiency with which these skills are generalized to settings and situations relevant to adolescents and young adults with ID.

Teaching Loosely

Teaching loosely involves changing non-essential components of social skill instruction (Alber-Morgan et al., 2007). Examples of teaching loosely include varying the setting or time of day during which instruction is provided, the individual providing instruction, or materials used during instruction (Smith & Gilles, 2003). The rationale behind teaching loosely is that, rather than allowing a particular social skill to come under the control of a non-essential stimulus, students come to understand that not all components of a particular context or situation are important. This decreases the
probability that a non-essential component of the instructional setting will be associated with a particular social skill targeted during instruction (Cooper, Heron, & Heward, 2008). It also increases the probability that at least some of the features present in the instructional setting will also be present in generalized settings within the school and community (Cooper et al., 2008).

Teaching loosely is especially applicable when targeting skill generalization across a wide array of settings and situations (Cooper et al., 2008). Given the complex and multi-faceted nature of social skills, teaching loosely is a crucial prerequisite to social skill instruction truly enhancing opportunity and quality of life among this population of students following their graduation from high school. If all stimuli within an instructional setting remain constant across instructional sessions, adolescents and young adults with ID may not display targeted social skills in the absence of these stimuli within generalized settings. To ensure this does not occur, teaching loosely encourages students to display targeted social skills across a diverse spectrum of stimuli present within instructional sessions (Scheeler, 2008). In other words, teaching loosely involves incorporating the diversity of generalized school and community settings into instructional settings. This prepares adolescents and young adults with ID to discriminate between essential and non-essential stimuli present within instructional and generalized settings.

**General Case Instruction**

General case instruction is based on the notion that, the more contexts and situations educators address when providing skill instruction, the more likely classroom instruction is to reflect the diverse spectrum of contexts and situations in daily life during
which targeted skills will be applicable (Alber-Morgan et al., 2007). Bolton and Mayer (2008) define general case instruction as the systematic selection of teaching examples. This process begins by first identifying the wide array of stimuli that need to be accounted for during social skill instruction. Next, educators identify and develop practical, every day contexts and situations that address this wide array of stimuli within generalization settings within the school and community (Tekin-Iftar & Birkan, 2010). The purpose for selecting a wide array of teaching examples is to ensure potential variations within generalization settings are accounted for when providing skill instruction.

Real-life settings and situations during which social skills are required are inherently complex. As a result, merely providing adolescents and young adults with ID opportunities to demonstrate these skills within generalized settings may not adequately prepare them for the variety of social situations they will encounter outside of the instructional setting. A key component of general case instruction is the purposeful selection of contexts and situations within which to assess social skill generalization (Cooper et al., 2008). It is impossible to account for all the nuances within generalized situations within school and community settings. However, general case instruction permits the efficient and holistic selection of practical scenarios students may encounter during life after high school (Kleeberger & Mirenda, 2010). By incorporating these practical scenarios within social skill instruction, educators can prepare adolescents and young adults with ID for a broad array of social situations they are likely to encounter during their daily lives outside of the school setting.
Programming Common Stimuli

Programming common stimuli involves incorporating components of real-world settings into instructional settings (Mesmer et al., 2007). Programming common stimuli facilitates skill generalization two different ways. First, educators use the same discriminative stimuli in the instructional setting students are likely to encounter outside of the instructional setting (Scheeler, 2008). Second, programming common stimuli involves designing instructional settings and situations to resemble real-world settings and situations students are likely to encounter during their daily lives. Cooper et al. (2008) emphasize the need for programming common stimuli even when providing students with opportunities to practice learned skills in practical, every day situations within school and community settings. Specifically, programming common stimuli into instructional settings allows educators to account for unique components of generalization settings that may not be represented in the general education classroom or during community-based instruction.

When instructional and generalization settings are similar, skill generalization is more likely to occur than when these settings are different (Alber-Morgan et al., 2007). Through programming common stimuli, cues that evoke targeted social skills during instructional settings are similar to cues intended to evoke targeted social skills within school and community settings (Alber-Morgan et al., 2007). Responding to natural as opposed to contrived cues within the instructional environment is an effective strategy for promoting skill generalization (Smith & Gilles, 2003). This process bridges the gap between instructional and generalized settings for adolescents and young adults with ID.
In the process, social skill instruction becomes clearer and more relevant among this population of students.

**Inclusion in the General Education Setting**

Wehmeyer and Abery (2013) advocate an ecological model of self-determination that focuses upon an individual’s struggle to exercise independence in a variety of social contexts. This ecological model illustrates that students with disabilities have less opportunities to develop and exercise skills related to decision-making and self-advocacy than students without disabilities and, as a result, are often less competent in these skill areas. This ecological model of self-determination is applicable to the acquisition and maintenance of social skills as well. Adolescents and young adults with ID require opportunities to practice social skills with their typically developing peers in order for these social skills to be generalized across settings and maintained over time (Feldman, Carter, Asmus, & Brock, 2016). With this in mind, inclusion in the general education setting is a crucial component of social skill generalization among adolescents and young adults with ID.

Developing relationships with peers is a crucial prerequisite to enhanced social skills among individuals with and without disabilities (Vlachou & Stavroussi, 2016). Contrary to self-contained, special education classrooms, inclusive settings facilitate greater levels of social interaction among students with disabilities (Hartzell, Liauspin, Gann, & Clem, 2015). This can be attributed to a greater number of peers with which to interact with in general education classrooms as opposed to self-contained, special education classrooms. It can also be attributed to increased confidence, self-esteem, and sense of belonging that inclusionary opportunities can facilitate among students with
disabilities (Santoli, Sachs, Romey, & McClurg, 2008). In either case, including adolescents and young adults with intellectual disabilities within the general education setting provides them with more opportunities to interact with and form meaningful relationships with their peers. This leads to more opportunities for adolescents and young adults with ID to generalize social skills learned in the classroom within authentic and meaningful social situations within the school setting.

Within the general education setting, adolescents and young adults can practice social skills directly through interactions with peers as well as indirectly as part of academic instruction. An inquiry approach to academic skill instruction can simultaneously enhance skills that are crucial prerequisites to social interaction with peers among students with ID. Miller (2012) explains that inclusionary science opportunities using an inquiry approach blend well with social skill instruction in the areas of daily problem solving and decision-making, critical thinking and reasoning, and community safety and awareness. A relationship exists between social skills such as those listed above and educational, employment, and independent living opportunities for students with ID following high school (Test et al., 2009b). This link, paired with ample opportunities for social interaction and communication with general education peers, suggests an inquiry approach to inclusion can meaningfully address social skills for students with ID.

Generalizing social skill instruction to the general education setting is essential for three reasons. First, as Feldman et al. (2016) explain, a crucial component to strengthening social skills is the opportunity to practice these skills. Due to the multitude of peers in general education settings, opportunities to practice and master social skills
are frequently available. Second, a rigorous and relevant general education curriculum inherently requires students with ID to demonstrate crucial social skills such as problem solving and decision-making. Opportunities to practice these skills in academic contexts can eventually be generalized to social contexts and situations within school, community, and employment settings. Third, since general education classrooms more closely resemble local communities compared to self-contained, special education classrooms, skills practiced in the general education classroom are more seamlessly translated to the community setting compared to skills only practiced within self-contained, special education classrooms.

**Community-Based Instruction**

A universal component of community-based instruction is that the instructional and natural environments are one in the same (Kamens, Dolyniuk, & Dinardo, 2003). This means that, during community-based instructional opportunities, students are responding to authentic social cues within naturally occurring contexts and situations as opposed to contrived contexts and situations within the classroom setting (Bates, Cuvo, Miner, & Korabek, 2001). Community-based instructional opportunities also allow adolescents and young adults with ID to come into contact with naturally occurring reinforcement contingencies similar to those they will encounter following their graduation from high school. Common contexts for community-based instruction include accessing public transportation, navigating as pedestrians within the local community, and making purchases at community restaurants and grocery stores (Steere & DiPipi-Hoy, 2012). Since employment is a common goal among individuals with and without disabilities, vocational exploration is also a common component of community-based
instructional opportunities among adolescents and young adults with ID (Kellems et al., 2015). Regardless of the context, the goal of community-based instruction is to facilitate skill generalization from the classroom to practical, every day situations adolescents and young adults with ID are likely to encounter.

Individuals with disabilities often struggle to form meaningful relationships with their peers as young adults (DiPipi-Hoy & Jitendra, 2004). Specifically, young adults with ID tend to have smaller social networks than their typically developing peers (Hanson-Baldauf, 2011). Despite opportunities for social interaction available through postsecondary transition programs, parents of young adults with intellectual disabilities desire opportunities for their children to broaden their social networks (Eisenman, Tanverdi, Perrington, & Geiman, 2009). While integrated opportunities for social interaction are highly desirable, safety concerns pertaining to students with ID accessing these services can serve as barriers to participation and success within these contexts. Isbell and Jolivette (2011) advocate the importance of social problem solving, an approach that allows individuals to think critically within practical contexts and situations. Applying a social problem solving approach to community-based instruction involves enhancing independent functioning skills among students with ID. This subsequently enhances safe involvement within the local community for adolescents and young adults with ID (Ayres, Mechling, & Sansosti, 2013).

Since employment is the ultimate goal of nearly all students, many schools have developed school-to-work programs to assist students with disabilities with obtaining and maintaining employment following their high school graduation (Jones & Bucholz, 2014). During these opportunities, students are provided with on the job training that both
supplements the curriculum they receive in the classroom setting as well as provides opportunities to generalize communication and social interaction skills within employment settings. These opportunities also allow students to interact with co-workers and use vocational problem-solving, decision-making, and self-advocacy skills (Jones & Bucholz, 2014). Kellems et al. (2015) also advocate virtual job shadowing as an effective intervention for preparing students with ID for successful employment outcomes as young adults. Given the limited resources available for many school districts today, virtual job shadowing serves as a practical option for allowing students with ID to generalize social skills learned in the classroom. Young adults with ID accomplish this by interacting with individuals in their desired field and learning more about daily tasks associated with their career interests.

Cihak, Alberto, Kessler, and Taber (2004) identify the amount of time students spend in the community as a predictor of student learning gains. Community-based instruction enables adolescents and young adults with ID to apply social skills learned in the classroom within real-life contexts and situations. Since students with disabilities often struggle to generalize skills learned in the classroom to real-life situations, enhancing skill generalization is a crucial component of social skill interventions. Community-based instruction enhances skill generalization among individuals with disabilities by bridging the gap between instructional and authentic settings (Hoover, 2016). This allows adolescents and young adults with ID to access their local communities with greater autonomy as young adults and, through consistent community access, establish and maintain relationships with peers in naturally occurring contexts and situations.
The Goal of Skill Generalization

Fostering skill generalization is a two-step process. Variations related to generalized settings and situations must be identified and carefully accounted for during instruction (Cooper et al., 2008). In addition, skills addressed within instructional settings must come into contact with reinforcement in non-instructional settings. Table 1 represents a systematic approach to linking social skills learned in the classroom with practical, every day social contexts and situations based on these two principles of skill generalization. First, social skill instructional settings are carefully planned to foster skill generalization. This is accomplished through teaching loosely, general case instruction, and programming common stimuli. The goal of these interventions is to address the wide variety of social contexts and situations adolescents and young adults encounter, prepare students to respond to a variety of environmental stimuli, and prepare students to differentiate between essential and non-essential stimuli within social contexts and situations. In order to truly support adolescents and young adults with ID with generalizing social skills, opportunities to practice and master these skills must take place within the general education and community settings. This fosters instructional relevancy by bridging the gap between instructional and non-instructional situations. It also enhances student engagement as students access social reinforcement from their peers by engaging in social skills targeted during instructional sessions.
Facilitating Social Skill Generalization from Instructional to Naturally Occurring Settings

<table>
<thead>
<tr>
<th>Instructional Interventions to Promote Social Skill Generalization</th>
<th>Opportunities to Generalize Targeted Social Skills</th>
<th>Benefits of Generalizing Targeted Social Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Loosely</td>
<td>Inclusion in the General Education Setting</td>
<td>Holistic Social Skill</td>
</tr>
<tr>
<td>General Case Instruction</td>
<td>Community-Based Instruction</td>
<td>Opportunities to Practice and Master Social Skills</td>
</tr>
<tr>
<td>Programming Common Stimuli</td>
<td>Access to Naturally Occurring Reinforcement</td>
<td>Contingencies</td>
</tr>
</tbody>
</table>

Patterns and Trends within the Literature

Embedding Technology into Social Skill Instruction

One promising mode of social skill instruction includes the use of technology. Eighty-four percent of individuals seventeen or older in the US own cell phones (Geckle, 2016). Since this population of students uses technology to communicate outside of the school setting, it seems logical to assume that incorporating technology into the classroom setting could increase the relevancy of social skill instruction. In addition to increasing instructional relevancy, the adaptability of technology opens the door to many options, including modifying and accommodating instructional tasks based on the individualized learning needs of students within the classroom setting (Domalewska, 2014).
Modern technological innovations have drastically changed the way students live and communicate within an increasingly global society. Given the practical uses of technology in every day life, incorporating technology into the school setting can increase curricular relevance and prepare students for success in their local communities as young adults. Technological devices such as smart phones and iPads increase student engagement and encourage self-regulation when students are taught how to independently utilize these devices. They are also minimally socially stigmatizing supports because the use of iPads and smart phones during every day tasks is observed among a large number of individuals with and without disabilities in modern society.

**Providing Meaningful Inclusion Opportunities**

Students who infrequently participate in inclusionary opportunities within the school setting are likely to perceive these opportunities as aversive (Duchaine, Jolivette, & Fredrick, 2011). Since students often engage in problem behaviors in order to escape or avoid aversive tasks and activities, students who infrequently participate in inclusionary opportunities within the school setting are likely to communicate their anxiety and frustration during inclusionary opportunities through problem behaviors. In addition, students not given opportunities to access the general education setting are also not given opportunities to generalize social and communication skills outside of self-contained, special education classrooms. Expecting students with intellectual disabilities to effectively demonstrate these skills in practical, every day setting inherently requires the provision of consistent opportunities to practice these skills among their general education peers.
Social inclusion is a critical component of quality of life among students with ID (Murphy, 2009). With this in mind, it is paramount that students with ID participate in meaningful interactions with their peers within the school setting. Providing these opportunities consistently and with the supports necessary for students to experience success will increase meaningful peer interactions and relationships among this population of students. Consequently, students with ID are more likely to have meaningful peer interactions and relationships within their local communities that will enhance their quality of life as young adults.

**Generalizing Social Skills Across School Settings**

Demonstrating social skill acquisition within the classroom setting is a demonstration of progress and, as such, is an indicator of social skill development among students with ID. However, if these skills are not generalized to practical, every day settings, the benefits of social skill instruction are unlikely to have a significant effect on the lives of this population of students in their local communities. Students with disabilities often experience difficulties generalizing learned skills to novel situations (Church et al., 2015). Teaching loosely, the variation of non-critical components of social skill instruction, is a crucial component of skill generalization provided to students with ID typically represented in the social skill interventions explained in this literature review (Alber-Morgan et al., 2007).

The ultimate benefit of classroom instruction, whether it relates to academic or social skills, is to provide students with the prerequisite skills necessary to pursue their goals as young adults within the local community. However, skill generalization must occur in order for classroom instruction to truly facilitate postsecondary success as
intended for students with ID. Generalization components common among the social skill interventions discussed in this literature review suggest two things. First, the need to generalize skills learning in the classroom across settings is universally regarded with importance. Second, generalization often does not occur independent of interventions designed to foster this crucial instructional component. Instead, building generalization components into social skill interventions is required to address skill generalization when meeting the instructional needs of students with ID.

**Is Skill Generalization Truly Occurring during Social Skill Instruction among Students with Intellectual Disabilities?**

The importance of addressing skill generalization pertaining to social skill instruction is clearly established in research elaborated upon throughout this literature review. However, practical difficulties associated with skill generalization suggest a research to practice gap related to this topic. Despite research emphasizing the need to generalize social skills across settings, accomplishing this when providing instruction to students with ID is often complicated by several factors.

One factor complicating skill generalization within the school setting involves collaboration between special educators and general educators. Despite research supporting the need for students with ID to practice social skills within inclusive settings, minimal collaboration between special education and general education teachers often serves as a barrier to inclusive opportunities for this population of students (Cooper, Kurtts, Baber, & Vallecorsa, 2008). Minimal formal education and practical experiences with inclusive education further complicate collaboration among general and special educators (Harvey, Yssel, Bauserman, & Merbler, 2010). Opportunities to practice social
skills within the general education setting are crucial to the generalization process since general education classrooms more closely resemble local communities compared to self-contained, special education classrooms. However, limited access to general education classrooms minimizes the opportunities for this population of students to meaningfully generalize social skills across practical, every day settings and situations.

Another factor limiting social skill generalization across settings is limited access to the local community for students with ID. Given budgeting constraints faced by many school districts, providing transition opportunities related to postsecondary goals is often challenging. Virtual job shadowing and vocational exploration provide practical opportunities for students with ID to plan for life after high school (Kellems et al., 2015). However, in order to provide students with intellectual disabilities with meaningful opportunities to access their local communities and generalize skills learned in the classroom to practical, every day settings, special educators must also collaborate with local transition agency representatives and service providers. Providing special educators with the skills and strategies necessary to facilitate this collaboration should be investigated during future research studies.

Test et al. (2009a) researched commonalities among transition plans as identified by analyzing sixty-three peer-reviewed research studies. Despite identifying several evidence-based practices related to transition skill instruction in the school setting, there was only one example of evidence-based practices related to the extension of transition services beyond high school. In addition, there were no evidence-based practices observed related to interagency collaboration (Test et al., 2009a). Lack of communication with and among community agencies and service providers limits the effectiveness of
available services for students with moderate to severe intellectual disabilities. In addition, ambiguity related to what constitutes effective collaboration with community agencies suggests involvement of community resources may not be utilized to the maximum extent possible.

Practical difficulties with generalizing social skills across school and community settings emphasize the need for additional research. Specifically, research is needed to assess the level of skill generalization exhibited by students as a result of social skill instruction provided in the classroom setting. This research should also identify practical barriers to effective skill generalization as well as practical strategies for overcoming these barriers. Results obtained from future research may uncover strategies for enhancing the practicality of classroom instruction, increasing opportunities to practice new skills, and, most importantly, generalizing these skills across settings and situations in accordance with the goals of students with ID for life after high school.

**Conclusion**

The prevalence of limited postsecondary opportunities for students with intellectual disabilities points to the need for improvements in the areas of social skill instruction. Embedding social skill instruction within practical, every day situations can allow students with intellectual disabilities to understand the interconnection between success in the classroom and success in the community. Given access to the general education setting and local community, students can generalize social skills learned in the classroom to inclusive situations similar to those they will encounter as young adults. However, merely providing access to the general education and community settings alone will not result in skill generalization among students with intellectual disabilities. Instead,
customized social skill instruction based on the strengths, needs, goals, and interests of students with ID is needed to truly facilitate skill generalization across settings among this population of students. When this is accomplished, students with ID will truly have the opportunity to achieve their postsecondary goals and maximize their quality of life during young adulthood.
CHAPTER III
METHODOLOGY

The purpose of this study was to investigate the effectiveness of explicit instruction using role-play provided within naturalistic settings on the acquisition of conversational skills among young adults with ID. For the purposes of this study, young adults with ID included individuals between the ages of 18 and 28 that met the inclusionary eligibility requirements for special education services under the eligibility category of intellectual disability prior to turning 21 years of age. A single-subject, multiple baseline across participants design was used. This chapter will detail the methodology, participants, data collection methods, and data analysis plan used to address the purpose of this study. This chapter also presents the procedures for utilizing a multiple baseline research study, highlighting the recruitment and eligibility requirements for participation, participants and settings, procedures, data analysis, inter-observer agreement (IOA) and social validity. These elements were used to assess the effect of explicit instruction using role-play provided within naturalistic setting on the acquisition of conversational skills among young adults with intellectual disabilities. The premise of this study was that educators can enhance the effectiveness of conversational skill instruction by (a) linking skills addressed in instruction with student experiences and recreational interests; and (b) providing consistent opportunities for students to acquire and apply these skills within the natural environment (i.e., practical, every day situations they are likely to encounter as young adults).
The research question used in this study is outlined below:

Q1 What is the effect of explicit skill instruction using role-play provided within naturalistic settings on elaborated responses and questions asked during conversations with peers among college students with intellectual disabilities?

**Participant Recruitment and Eligibility Requirements**

Following Institutional Review Board approval (see Appendix A), individuals that agreed to participate in this research study signed a consent form for human participation in research (see Appendix B). Participants included four students between the ages of 18 and 28 that meet the inclusionary eligibility requirements for special education services under the eligibility category of intellectual disability prior to turning 21 years of age. These eligibility criteria include (a) significantly sub-average general intellectual functioning; (b) deficits in adaptive behavior; and (c) adversely affected educational performance as a result of (a) and (b) as outlined in IDEA. In addition to the criteria above, participants met the following criteria: (a) 18 years of age or older; (b) emancipated (students that had not transferred their guardianship); and (c) enrolled in a postsecondary university program.

Judy, a female participant, was 21 years old at the time of this study. Judy was diagnosed with ID and cerebral palsy. Prior to enrolling in a postsecondary university program, Judy had participated in a postsecondary transition program, worked part-time, and taken college courses through a community college. Doug, a male participant, was 20 years old at the time of this study. Doug was diagnosed with ID and ASD. Prior to enrolling in a postsecondary university program, Doug worked part-time and volunteered within his local community. Roger, a male participant, was 28 years old at the time of this study. Roger was diagnosed with ID and fragile X syndrome. Prior to enrolling in a
postsecondary university program, Roger worked part-time within his local community. During the baseline phase of this research study, one participant had to withdraw for personal reasons and ultimately withdrew from the university as well. As a result, this participant was not able to progress through intervention and generalization phases of this research study.

**Setting**

The general setting for this research study was a University in the United States that includes a postsecondary university program for students with disabilities. Specific settings included within this research study can be grouped into the following three categories: instructional settings, observation setting, and generalization probe settings.

**Instructional Settings**

Instructional settings refer to campus and community settings during which explicit instruction using role-play was provided to participants within this research study. These campus and community settings were selected based on individual participant recreational interests as well as settings participants encountered on a daily basis at the time of this research study. Campus and community settings included the following: a campus academic building where each participant took classes as part of their postsecondary university program, a pizza restaurant located within a few blocks of campus popular among students at the same university as participants, and a coffee shop located within a few blocks of campus popular among students at the same university as participants.
Observation Setting

The observation setting refers to “Coffee Talk,” events offered Mondays, Wednesdays, and Fridays from 8:30 a.m. to 9:15 a.m. throughout the academic semester during which this research study took place. “Coffee Talk” was advertised through listserv distribution emails to undergraduate and graduate students attending the same university as participants, social media postings, and signs posted throughout the academic building on campus where “Coffee Talk” events were held. “Coffee Talk” was open to all undergraduate and graduate students attending the same university as participants with the goal of promoting social interaction among students on campus. “Coffee Talk” events provided free coffee, hot chocolate, bagels, and muffins to attendees. Typically, approximately 20-30 students attended “Coffee Talk” events.

Generalization Probe Settings

Generalization probe settings refer to campus dining halls where participants within this research study were enrolled in a postsecondary university program. These settings were selected for generalization probes because each participant encountered campus dining halls on a daily basis at the time of this research study. As a result, they were determined to be relevant settings in which to measure the generalization of skills taught in the instructional settings outlined above.

Experimental Design

A single-subject experimental design was selected for this research study for two reasons. First, single-subject designs are considered the gold standard in the field of applied behavior analysis. Applied behavior analysis has historically contributed to a strong research base of evidence-based practices for enhancing socially significant
behaviors for individuals with disabilities (Carr, Moore, & Anderson, 2014). Second, a single-subject research design enables researchers to examine functional relationships between behaviors and targeted interventions within applied research settings (Gillis & Butler, 2007). Within a single-subject research design, the comparison of participant performance during baseline and intervention phases can provide measurement regarding the impact of the independent variable. In other words, each participant serves as his or her own research control (Horner et al., 2005). Visual inspection is used to compare participant performances during baseline and intervention phases to determine the significance of the independent variable.

Multiple baseline across participants designs are commonly used in single-subject literature pertaining to teaching social skills to students with disabilities (Gengoux, 2015; Rollins, Campbell, Hoffman, & Self, 2016; Koegel, Vernon, Koegel, Koegel, & Paullin, 2012). A benefit of multiple baseline research across participant designs is that they do not rely on a reversal phase to demonstrate experimental control (Kelly & Shogren, 2014). Because the independent variable in this research study involved targeted conversational skill instruction, it would be impossible to include a reversal phase during which the independent variable was removed. Instead of including a reversal phase to quantify the effect of the independent variable, the participants in multiple baseline across participant designs progress through baseline and intervention phases at different times through the implementation of staggered baseline phases (Briere, Simonsen, Sugai, & Myers, 2015). This approach accounts for factors such as history and maturation that could threaten the internal validity of a research study. In a multiple baseline across participants design, experimental control is established when an intervention results in an
anticipated change in behavior across participants once the intervention is introduced following the baseline phase (Horner et al., 2005).

**Dependent Measures**

The dependent variables addressed as part of this research study were (a) elaborating on responses during conversations with peers and (b) asking questions during conversations with peers. These dependent variables were also used in a study conducted by Koegel, Park, and Koegel (2014) that investigated conversational skills among children and adolescents with ASD. Each dependent variable is described in detail within the sections below.

**Elaborating on Responses During Conversations with Peers**

Elaborating on responses during conversations with peers targeted participant responses to questions asked by peers during conversations and consisted of two components. The first component was that response answered the questions being asked and, as a result, was relevant to the conversation between the participant and his or her peer. The second component was that the response moved beyond merely answering the question by including relevant, on-topic information related to the conversation. A critical component of elaborated responses was that these responses increased the duration of conversations with peers. Within this study, data related to the frequency of elaborated responses during conversations with peers were collected throughout the 15-minute observation period. Table 2 provides examples and non-examples of elaborated responses collected as part of this research study.
Table 2

*Examples and Non-Examples of Elaborated Responses*

<table>
<thead>
<tr>
<th>Question Asked by Peer</th>
<th>Non-Example of an Elaborated Response</th>
<th>Example of an Elaborated Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you like best about college?</td>
<td>The recreation center.</td>
<td>The recreation center. There is always somebody new to talk to.</td>
</tr>
<tr>
<td>What is your favorite class this semester?</td>
<td>Geography.</td>
<td>Geography. It is cool to learn more about different places I want to visit.</td>
</tr>
<tr>
<td>What did you do over the weekend?</td>
<td>Visited with friends.</td>
<td>Visited with friends. My friend Jill had a birthday party at her house.</td>
</tr>
</tbody>
</table>

**Asking Questions During Conversations with Peers**

Asking questions during conversations with peers targeted participant questions to peers with and without disabilities during conversations. An essential feature of these questions was that they evoked a response from a conversational partner. In other words, if participants asked questions to their peers and their peers did not respond, it was assumed that their peers either did not hear questions being asked or did not know questions were addressed to them specifically. In either case, only questions that evoked a response from a conversational partner were counted. Similar to elaborating on responses during conversations, a critical component of asking questions was that these questions extended conversations with peers. Within this study, data related to the frequency of asking questions during conversations with peers were collected throughout the 15-minute observation period.
Independent Measure

Explicit Instruction using Role-Play

Participants participated in explicit instruction using role-play within naturalistic settings as the intervention component of this research study. The goal of explicit instruction using role-play was to support participants with both acquiring conversational skills related to elaborating on responses and asking questions as well as applying these skills within practical, every day contexts and situations. The curriculums used to provide instruction included *Conversational Skills: On the Job and in the Community* and *Conversational Skills II: Extending Conversations*. Attainment Company published both curriculums. Curriculums were selected based on their emphasis on naturalistic social settings as well as their emphasis on meeting the needs of young adults with ID. Topics for explicit instructional sessions included in the curriculums above included (a) elaborating upon responses during conversations with peers; (b) asking questions during conversations with peers; (c) introducing oneself to peers; (d) greeting peers; (e) initiating conversations with peers; and (f) active listening strategies related to facial expressions, body language, and expansive questions related to peer responses. During instructional sessions, the topics above were spiraled to ensure each topic was addressed repeatedly over the course of this research study.

While the topics of instruction were determined based on the curriculums described above, methods of instructional delivery were selected based on a comprehensive review of literature outlined within Chapter II of this dissertation. Within this study, each instructional session consisted of (a) establishing and analyzing progress toward social interaction goals; (b) providing explicit instruction related to conversational
skills; (c) modeling examples and non-examples of conversational skills; (d) role-play related to conversational skills; (e) developing self-monitoring strategies related to conversational skills; and (f) check-ins between sessions during which participants reflected on progress, voiced questions or concerns with skill application, and updated social interaction goals with the PI of this research study. Please refer to Appendix C for an example of a lesson plan used to guide instructional sessions conducted during this research study. Participants received one, 90-minute instructional session each week during the intervention phase of this research study. In addition, participants met approximately two times each week for 15-minute check-ins as described above. The PI of this research study conducted all instructional sessions and check-ins with participants.

Naturalistic settings within which explicit instruction using role-play occurred were selected based on (a) settings participants encountered on a daily basis at the time of this research study and (b) participant recreational interests. Specifically, instruction was provided within an academic building on campus where each participant took classes as part of their postsecondary university program. The remaining two instructional settings were selected by participants themselves and included a local pizza restaurant and coffee shop. Each of these settings was located within a few blocks of campus and was a popular destination among students attending the same university as participants within this study.

**Procedure**

This research study consisted of baseline, intervention, and generalization phases. During the baseline phase of this research study, participants were observed during “Coffee Talk” with their peers with and without disabilities. During these observations,
data were collected related to the frequency of both elaborated responses and questions asked. During the intervention phase, participants continued being observed during “Coffee Talk” and frequency data continued being collected related to both elaborated responses and questions asked. However, during the intervention phase, participants were provided with explicit skill instruction using role-play within naturalistic settings related to conversational skill instruction. During the generalization phase, participants were observed within campus dining halls applying conversational skills acquired during the intervention phase of this research study. The baseline, intervention, and generalization phases of this research study are elaborated upon in the sections below.

**Baseline Phase**

During the baseline phase of this research study, participants were observed during approximately three, 15-minute sessions each week during “Coffee Talk.” “Coffee Talk” events were designed to promote social interaction among undergraduate and graduate students on campus. These events took place inside an academic building on campus and were sponsored by a conversation club. During these observation sessions, frequency data were collected related to participants (a) elaborating on responses during conversations with peers and (b) asking questions during conversations with peers. Individuals collecting data consisted of the PI as well as trained undergraduate and graduate students enrolled at the same university as participants within this research study.

Staggered baselines were used within this research study to minimize confounding variables related to participant history and maturation (Briere et al., 2015). While each participant progressed through the baseline phase at different rates, the
baseline phase for each participant continued until (a) the participant had at least six data points within their baseline phase; and (b) the participant’s baseline was characterized by a stable trend based on visual inspection conducted by the PI, the PI’s research advisor, the participants’ academic coordinator, and the participants’ program director.

**Intervention Phase**

Similar to the baseline phase described above, participants were observed during approximately three, 15-minute sessions each week while attending “Coffee Talk” during the intervention phase. During these observations, the frequency of both elaborated responses and questions asked continued to be collected by the PI as well as trained undergraduate and graduate student data collectors enrolled at the same university as participants within this research study.

During the intervention phase of this research study, participants engaged in one, 90-minute sessions each week consisting of explicit instruction using role-play within naturalistic settings to acquire conversational skills related to (a) elaborating upon responses during conversations with peers; (b) asking questions during conversations with peers; (c) introducing oneself to peers; (d) greeting peers; (e) initiating conversations with peers; and (f) active listening strategies related to facial expressions, body language, and expansive questions related to peer responses. Methods of instructional delivery for each of these conversational skills consisted of (a) establishing and analyzing progress toward social interaction goals; (b) providing explicit instruction related to conversational skills; (c) modeling examples and non-examples of conversational skills; (d) role-play related to conversational skills; (e) developing self-monitoring strategies related to conversational skills; and (f) check-ins between sessions during which participants
reflected on progress, voiced questions or concerns with skill application, and updated social interaction goals with the PI of this research study. Settings within which instruction occurred included campus academic buildings, community restaurants, and community coffee shops. The goal of explicit instruction using role-play was to support participants with both acquiring conversational skills related to elaborating upon responses and asking questions as well as applying these skills within practical, every day contexts and situations.

While each participant progressed through the intervention phase at different rates, the intervention phase for each participant was characterized by the following: (a) at least two, 90-minute explicit instructional sessions using role-play; and (b) at least six data points within their intervention phases.

**Generalization Phase**

Generalization probe sessions were conducted during this research study to investigate the ability of participants to apply newly acquired conversational skills within practical, every day contexts and situations. Within this research study, generalization probes were conducted in campus dining halls. Data collected during generalization probe sessions adhered to the same procedures used during “Coffee Talk” observation sessions outlined above. Each participant participated in at least three, 15-minute observation sessions during the generalization phase of this research study.

**Procedure Summary**

Table 3 summarizes the process by which participants progressed through the baseline, intervention, and generalization phases within this research study. Components of the procedure related to IOA, length of phases, and ongoing visual inspection were
included in correlation with What Works Clearinghouse recommendations for single-subject research ((Kratochwill et al., 2010).

Table 3

*Research Study Procedure: Sequence of Phases*

<table>
<thead>
<tr>
<th>Baseline Phase</th>
<th>Intervention Phase</th>
<th>Generalization Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least six, 15-minute observations during</td>
<td>At least two, 90-minute explicit instructional sessions using</td>
<td>At least three, 15-minute observations within</td>
</tr>
<tr>
<td>“Coffee Talk.”</td>
<td>role-play.</td>
<td>campus dining halls.</td>
</tr>
<tr>
<td>IOA for at least 25% of observation periods.</td>
<td>At least six, 15-minute observations during “Coffee Talk.”</td>
<td>IOA for at least 25% of observation periods.</td>
</tr>
<tr>
<td>Visual inspection of data stability, trend,</td>
<td>IOA for at least 25% of the observation periods.</td>
<td>Visual inspection of data stability, trend, and</td>
</tr>
<tr>
<td>and level across baseline phase related to</td>
<td></td>
<td>level across generalization phase related to</td>
</tr>
<tr>
<td>both (a) elaborated responses and (b)</td>
<td></td>
<td>both (a) elaborated responses and (b) questions</td>
</tr>
<tr>
<td>questions asked.</td>
<td></td>
<td>asked.</td>
</tr>
</tbody>
</table>

Data Collection and Recording Procedures

**Participant Observation**

During baseline, intervention, and generalization phases, participants were observed and the frequency of (a) elaborated responses and (b) questions asked was collected. Within this study, data related to the frequency of both elaborated responses and questions asked during conversations with peers throughout 15-minute observation periods were collected and analyzed. Each of these dependent variables was also used in a study conducted by Koegel, Park, and Koegel (2014) that investigated conversational skills among children and adolescents with ASD. For the purpose of this study, peers are
defined as undergraduate and graduate students with and without disabilities that attended the same university as participants.

Data were collected electronically through Counter, a cellular phone application created by DaisyApps. Collecting data electronically using cellular phones allowed data collectors to assimilate into data collection settings. During the baseline, intervention, and generalization phases of this research study, data were collected during approximately three, 15-minute sessions each week. The PI as well as trained undergraduate and graduate students enrolled at the same university as participants within this research study collected data. Prior to collecting data as part of this research study, data collectors received (a) instruction pertaining to the data collection methods used in this research study; and (b) opportunities to practice data collection methods used in this research study. Instruction consisted of a PowerPoint presentation that included definitions of dependent variables; examples and non-examples of each dependent variable; a tutorial on how to download, set-up, and utilize the data collection app; and videos of conversations during which they could practice collecting data as part of this research study. During practice opportunities, data collectors collected data during “Coffee Talk” events using the same methods as used in baseline, intervention, and generalization phases. Data collectors participated in at least three of these sessions and, in accordance with What Works Clearinghouse recommendations for single-subject research, each data collector was required to achieve at least a total IOA of 80% prior to collecting data as part of this research study (Kratochwill et al., 2010).

During baseline and intervention phases, data collection took place during “Coffee Talk,” events offered approximately three times each week and designed to
promote social interaction among undergraduate and graduate students on campus. These events took place inside an academic building on campus and were sponsored by a conversation club on campus. During the generalization phase, data were collected within campus dining halls to analyze participant application of newly acquired conversational skills within practical, every day contexts and situations. Within all phases, participants were free to move throughout data collection settings and converse with any peers they chose. In other words, participant conversational skills were measured authentically within naturalistic settings throughout this study.

During all data collection sessions, data collectors sat in close proximity to participants but did not actively engage in conversations with participants during data collection sessions. In order to assimilate into data collection settings without actively participating in conversations, data collectors (a) sat next to participants approximately five minutes prior to the beginning of data collection sessions; (b) conversed with participants prior to the beginning of data collection sessions; and (c) at the beginning of data collection sessions, participants took out electronic devices and appeared to be either texting on their cell phones or completing school assignments on their laptops as they collected data. If participants attempted to engage data collectors in conversations during data collection sessions, data collectors redirected conversations to peers with and without disabilities in close proximity to participants. This allowed data collectors to separate themselves from participant conversations in a socially acceptable manner. While participants knew their frequencies of both elaborated responses and questions asked were being collected as part of this study, they were unaware of who was collecting data and when data were being collected during each phase of this study.
Similar to a study conducted by Carter et al. (2011) that also monitored social skills within naturalistic settings, participants’ peers were unaware data were being collected during data collection sessions within “Coffee Talk” and campus dining halls. Within this study, informing participants’ peers that data were being collected would have been inappropriate for two reasons. First, informing participants’ peers of the scope and sequence of this study would have inherently influenced the authenticity of data collection settings as well as results obtained within naturalistic settings. Second, informing participants’ peers of the scope and sequence of this study could have violated participant confidentiality based on the Behavior Analyst Certification Board code of ethics. Ethics code 2.07 requires behavior analysts to take reasonable precautions to protect the confidentiality of individuals they work with (Bailey & Burch, 2011). Since informing peers of the scope and sequence of this study could have inadvertently breached the confidentiality of participants, participants’ peers remained blind to the conditions of this study.

**Social Validity**

The social validity related to this research study was supported by three specific components of the study itself. First, social skills addressed in this study were (a) determined to be relevant based on a comprehensive review of literature; and (b) addressed in a manner supported as both a practical and evidence-based instructional strategy for working with young adults with ID within related literature. Second, the specific social skill areas addressed in this study were customized based on individual participant needs as determined by the participants’ academic coordinator and program director. This suggests that, in addition to being relevant for young adults with ID based
on related literature, these social skills were also critical areas of need for the participants themselves within this research study. Third, social skill instruction during the intervention phase of this research study was linked with participant recreational interests based on conversations with participants themselves. As a result, the social skills addressed in this research study were both participant skill deficits as well as crucial to support participants’ progress toward current recreational interests and future social interactions.

**Treatment Fidelity**

During the intervention phase, the PI provided explicit instruction using role-play within naturalistic settings during each session to ensure the intervention corresponded with the scope and sequence of instruction outlined within this research design. Instructional sessions were modified based on the learning needs and preferences of participants within this research study. However, each participant received the same instructional scope and sequence pertaining to explicit conversational skill instruction outlined within this research study. Finally, in correlation with the data collection and analysis procedures outlined above, precautions were taken to ensure data pertaining to the effectiveness of the intervention provided to participants within this study were collected with fidelity. Data collectors participated in at least three practice data collection sessions and, in accordance with What Works Clearinghouse recommendations for single-subject research (Kratochwill et al., 2010), practice sessions continued until participants achieved at least a total IOA of 80%.
Inter-Observer Agreement

When participants were observed applying conversational skills during “Coffee Talk” sessions as well as within campus dining halls during generalization probes, an app called “Counter” was used to track the frequency of both elaborated responses and questions asked demonstrated by participants. In accordance with What Works Clearinghouse recommendations for single-subject research, inter-observer agreement was obtained during 25% of these observation sessions with the goal of achieving at least an 80% criterion related to total IOA for this research study (Kratochwill et al., 2010). During IOA sessions, the principal investigator collected data, independent of student data collectors, during the same sessions as student data collectors.

A total count IOA was used to quantify agreement between student data collectors and the principal investigator during these sessions of both elaborated responses and questions asked during conversations with peers. Total count IOA is used in related single-subject studies that address social skills among individuals with disabilities (Gengoux, 2015; Koegel et al., 2012). In addition, since data within this study were collected within naturalistic settings, total count IOA was a practical method of gathering inter-observer agreement. The formula used to determine inter-observer agreement was the following:

\[
\text{Total Count IOA} = \left( \frac{\text{Smaller of Observers’ Count}}{\text{Larger of Observers’ Count}} \right) \times 100
\]

Conclusion

Using a single-subject, multiple baseline across participants design, this study contributes to the research field by (a) investigating the effectiveness of linking conversational skill instruction with student recreational interests; and (b) providing
consistent opportunities for individuals to generalize these skills within practical, everyday situations they are likely to encounter as young adults. During the course of this research study, participants were observed as they demonstrated both elaborated responses and asking questions during conversations with peers. Through data collection and analysis, the results of this study state the effectiveness of explicit instruction using role-play within naturalistic settings on the acquisition on conversational skills among college students with ID that participated in this study.
CHAPTER IV

RESULTS

The previous chapter outlined the methods used to examine the effectiveness of explicit instruction using role-play on the conversational skills of college students with ID in the naturalistic setting. Specifically, the intervention provided to participants within this research study targeted elaborated responses and questions asked during conversations with peers. The goal of this intervention was to increase the duration of conversations between participants and their peers with and without disabilities as well as the frequency of future conversations between participants and their peers. Similar to related studies examining social skills among individuals with disabilities (Gengoux, 2015; Rollins et al., 2016; Koegel et al., 2012), a multiple baseline across participants design was used to answer the following research question:

Q1 What is the effect of explicit skill instruction using role-play within naturalistic settings on elaborated responses and questions asked during conversations with peers among college students with intellectual disabilities?

The results of this research study are presented within this chapter. Findings presented in this chapter include inter-observer agreement and results related to elaborated responses and questions asked during the baseline, intervention, and generalization phases for each participant within this research study. Findings related to the research question above are discussed within Chapter V of this dissertation. The
intent of this chapter is to present and analyze data collected in a manner typical for single-subject research design.

**Inter-Observer Agreement**

Inter-observer agreement was collected for approximately 30% of all baseline, intervention, and generalization phase observation sessions included in this research study. This is in accordance with What Works Clearinghouse recommendations for single-subject research (Kratochwill et al., 2010). During IOA sessions, the PI collected data independent of student data collectors but during the same sessions as student data collectors. In accordance with related single-subject design studies that addressed social skills among individuals with disabilities (Gengoux, 2015; Koegel et al., 2012), a total count IOA was used to quantify agreement between student data collectors and the principal investigator during these sessions for both elaborated responses and questions asked during conversations with peers. The formula used to determine inter-observer agreement was the following:

\[
\text{Total Count IOA} = \left( \frac{\text{Smaller of the Observer’s Count}}{\text{Larger of the Observer’s Count}} \right) \times 100
\]

**Elaborated Responses**

Throughout baseline, intervention, and generalization phases, IOA was collected related to elaborated responses among participant within this research study. Inter-observer agreement was calculated on 24 out of 79 participant observation sessions (approximately 30% of all participant observation sessions). Based on the formula for total IOA above, inter-observer agreement related to elaborated responses was approximately 87.04% during this research study. A total IOA of 87.04% suggests that no
significant discrepancies among data collectors interfered with the reliability of data related to elaborated responses within this research study.

**Asking Questions**

Throughout baseline, intervention, and generalization phases, IOA was collected related to asking questions among participant within this research study. Inter-observer agreement was calculated on 24 out of 79 participant observation sessions (approximately 30% of all participant observation sessions). Based on the formula for total IOA above, inter-observer agreement related to asking questions was approximately 91.23% during this research study. A total IOA of 91.23% suggests that no significant discrepancies among data collectors interfered with the reliability of data related to asking questions within this research study.

**Results**

Using the multiple baseline across participants research design, data pertaining to each participant within this research study were analyzed separately. Descriptive statistics related to the mean frequency of both elaborated responses and questions asked is provided. In addition, the percentage of nonoverlapping data points (PND) related to both elaborated responses and questions asked was analyzed as part of this research study. Percentage of nonoverlapping data points refers to the percentage of nonoverlapping data points when comparing intervention results with baseline results. In order to evaluate intervention effectiveness, this study used PND criteria in accordance with a meta-analysis of single-subject research conducted by Scruggs and Mastropieri (1998). The criteria used by Scruggs and Mastropieri (1998) were also used in a similar study conducted by Gengoux (2005) that investigated social skills among individuals with
disabilities using a multiple baseline across participants design. A description of these criteria is provided in Table 4.

Table 4

*Criteria used by Scruggs and Mastropieri (1998) to Evaluate Intervention Effectiveness using PND*

<table>
<thead>
<tr>
<th>Percentage of Nonoverlapping</th>
<th>Intervention Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%-100%</td>
<td>Very Effective</td>
</tr>
<tr>
<td>70%-89%</td>
<td>Effective</td>
</tr>
<tr>
<td>50%-69%</td>
<td>Questionable Effectiveness</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>Ineffective</td>
</tr>
</tbody>
</table>

In Figures 2 and 3, results for the three participants that progressed through baseline, intervention, and generalization phases of this research study are displayed. One purpose of these figures is to highlight the use of staggered baselines, a feature common in single-subject design used to guard against extraneous variables such as history and maturation (Briere et al., 2015). In the sections below, participant results related to both elaborated responses and questions asked are provided. For each participant, results related to elaborated responses and questions asked are described together. This allows readers to simultaneously observe individual participant growth pertaining to each dependent variable over the course of baseline, intervention, and generalization phases of this research study.
Figure 2. Combined participant results related to elaborated responses.
Figure 3. Combined participant results related to questions asked.
Judy

**Baseline phase.** Judy’s baseline phase consisted of six data collection sessions. During these sessions, Judy elaborated on responses during conversations with peers with a mean frequency of 3.0 elaborated responses per data collection session. Judy’s frequency of elaborated responses ranged from two to four elaborated responses during her baseline phase. During her baseline phase, Judy asked questions to peers during conversations with a mean frequency of 1.0 questions asked per data collection session. Judy’s frequency of asking questions ranged from zero questions asked to two questions asked during her baseline phase.

**Intervention phase.** Judy’s intervention phase consisted of 13 data collection sessions. During these sessions, Judy elaborated on responses during conversations with peers with a mean frequency of 6.85 elaborated responses per data collection session. Judy’s frequency of elaborated responses ranged from three to 12 elaborated responses during her intervention phase. During her intervention phase, Judy asked questions to peers during conversations with a mean frequency of 4.23 questions asked per data collection session. Judy’s frequency of asking questions ranged from one question asked to nine questions asked during her intervention phase.

While Judy elaborated on responses with a mean frequency of 3.0 elaborated responses per data collection session and with a range of two to four elaborated responses during her baseline phase, results increased to a mean frequency of 6.85 elaborated responses per data collection session with a range of three to 12 elaborated responses during her intervention phase. This demonstrates a total increase in mean frequency of
3.85 elaborated responses per data collection session. An analysis of PND demonstrates that the intervention was effective (PND=77%) (Scruggs & Mastropieri, 1998).

An increase in results is also evident related to Judy asking questions during conversations with peers. While Judy asked questions with a mean frequency of 1.0 questions asked per data collection session and with a range of zero to two questions asked during her baseline phase, results increased to a mean frequency of 4.23 questions asked per data collection session with a range of one to nine questions asked during her intervention phase. This demonstrates a total increase in mean frequency of 3.23 questions asked per data collection session. An analysis of PND demonstrates that the intervention was effective (PND=77%) (Scruggs & Mastropieri, 1998).

**Generalization phase.** Judy’s generalization phase consisted of three data collection sessions. During these sessions, Judy elaborated on responses during conversations with peers with a mean frequency of 8.33 elaborated responses per data collection session. This represents a total increase in mean frequency of 1.48 elaborated responses per data collection session compared to her intervention phase and 5.33 elaborated responses per data collection session compared to her baseline phase. Judy’s frequency of elaborated responses ranged from seven to nine elaborated responses during her generalization phase. During her generalization phase, Judy asked questions to peers during conversations with a mean frequency of 7.67 questions asked per data collection session. This represents a total increase in mean frequency of 3.44 questions asked per data collection session to her intervention phase and 6.67 questions asked per data collection session compared to her baseline phase. Judy’s frequency of asking questions ranged from four questions asked to 12 questions asked during her generalization phase.
Doug

**Baseline phase.** Doug’s baseline phase consisted of eight data collection sessions. During these sessions, Doug elaborated on responses during conversations with peers with a mean frequency of 1.88 elaborated responses per data collection session. Doug’s frequency of elaborated responses ranged from zero to four elaborated responses during his baseline phase. During his baseline phase, Doug asked questions to peers during conversations with a mean frequency of 2.63 questions asked per data collection session. Doug’s frequency of asking questions ranged from zero questions asked to six questions asked during his baseline phase.

**Intervention phase.** Doug’s intervention phase consisted of ten data collection sessions. During these sessions, Doug elaborated on responses during conversations with peers with a mean frequency of 6.10 elaborated responses per data collection session. Doug’s frequency of elaborated responses ranged from two to 11 elaborated responses during his intervention phase. During his intervention phase, Doug asked questions to peers during conversations with a mean frequency of 10.40 questions asked per data collection session. Doug’s frequency of asking questions ranged from three questions asked to 15 questions asked during his intervention phase.

While Doug elaborated on responses with a mean frequency of 1.88 elaborated responses per data collection session and with a range of zero to four elaborated responses during his baseline phase, results increased to a mean frequency of 6.10 elaborated responses per data collection session with a range of two to 11 elaborated responses during his intervention phase. This demonstrates a total increase in mean frequency of 4.22 elaborated responses per data collection session. An analysis of PND
demonstrates that the intervention was effective (PND=70%) (Scruggs & Mastropieri, 1998).

Doug asked questions during conversations with peers more frequently during his intervention phase compared to his baseline phase. While Doug asked questions with a mean frequency of 2.63 questions asked per data collection session and with a range of zero to six questions asked during his baseline phase, results increased to a mean frequency of 10.40 questions asked per data collection session with a range of three to 15 questions asked during his intervention phase. This demonstrates a total increase in mean frequency of 7.77 questions asked per data collection session. An analysis of PND demonstrates that the intervention was very effective (PND=90%) (Scruggs & Mastropieri, 1998).

**Generalization phase.** Doug’s generalization phase consisted of three data collection sessions. During these sessions, Doug elaborated on responses during conversations with peers with a mean frequency of 6.33 elaborated responses per data collection session. This represents a total increase in mean frequency of 0.23 elaborated responses per data collection session compared to his intervention phase and 4.45 elaborated responses per data collection session compared to his baseline phase. Doug’s frequency of elaborated responses ranged from five to eight elaborated responses during his generalization phase. During his generalization phase, Doug asked questions to peers during conversations with a mean frequency of 13.33 questions asked per data collection session. This represents a total increase in mean frequency of 2.93 questions asked per data collection session compared to his intervention phase and 10.70 questions asked per data collection session compared to his baseline phase. Doug’s frequency of asking
questions ranged from 11 questions asked to 15 questions asked during his generalization phase.

Roger

**Baseline phase.** Roger’s baseline phase consisted of ten data collection sessions. During these sessions, Roger elaborated on responses during conversations with peers with a mean frequency of 2.20 elaborated responses per data collection session. Roger’s frequency of elaborated responses ranged from zero to six elaborated responses during his baseline phase. During his baseline phase, Roger asked questions to peers during conversations with a mean frequency of 0.40 questions asked per data collection session. Roger’s frequency of asking questions ranged from zero questions asked to one question asked during his baseline phase.

**Intervention phase.** Roger’s intervention phase consisted of six data collection sessions. During these sessions, Roger elaborated on responses during conversations with peers with a mean frequency of 6.17 elaborated responses per data collection session. Roger’s frequency of elaborated responses ranged from five to eight elaborated responses during his intervention phase. During his intervention phase, Roger asked questions to peers during conversations with a mean frequency of 2.0 questions asked per data collection session. Roger’s frequency of asking questions ranged from zero questions asked to three questions asked during his intervention phase.

While Roger elaborated on responses with a mean frequency of 2.20 elaborated responses per data collection session and with a range of zero to six elaborated responses during his baseline phase, results increased to a mean frequency of 6.17 elaborated responses per data collection session with a range of five to eight elaborated responses.
during his intervention phase. This demonstrates a total increase in mean frequency of 3.97 elaborated responses per data collection session. An analysis of PND demonstrates that the intervention was ineffective (PND=33%) (Scruggs & Mastropieri, 1998).

An increase in results is also evident related to Roger asking questions during conversations with peers. While Roger asked questions with a mean frequency of 0.40 questions asked per data collection session and with a range of zero to one questions asked during his baseline phase, results increased to a mean frequency of 2.0 questions asked per data collection session with a range of zero to three questions asked during his intervention phase. This demonstrates a total increase in mean frequency of 1.60 questions asked per data collection session. An analysis of PND demonstrates that the intervention had questionable effectiveness (PND=67%) (Scruggs & Mastropieri, 1998).

**Generalization phase.** Roger’s generalization phase consisted of three data collection sessions. During these sessions, Roger elaborated on responses during conversations with peers with a mean frequency of 4.67 elaborated responses per data collection session. This represents a total decrease in mean frequency of 1.50 elaborated responses per data collection session compared to his intervention phase and a total increase in mean frequency of 2.47 elaborated responses per data collection session compared to his baseline phase. Roger’s frequency of elaborated responses ranged from four to five elaborated responses during his generalization phase. During his generalization phase, Roger asked questions to peers during conversations with a mean frequency of 4.0 questions asked per data collection session. This represents a total increase in mean frequency of 2.0 questions asked per data collection session compared to his intervention phase and 3.60 questions asked per data collection session compared
to his baseline phase. Roger’s frequency of asking questions ranged from three questions asked to five questions asked during his generalization phase.

**Summary of Results**

For each participant, mean frequencies of both elaborated responses and questions asked increased during the intervention when compared to the baseline phase. Mean frequency increases of elaborated responses ranged from 3.85 elaborated responses to 4.22 elaborated responses per data collection session among participants. Mean frequency increases of questions asked ranged from 1.60 questions asked to 7.77 questions asked per data collection session among participants. An analysis of PND demonstrated that the intervention used within this research study effectively or very effectively enhanced conversational skills related to elaborating on responses and asking questions for two of the three participants within this research study. During the generalization phase, each participant demonstrated an increase in mean frequency of elaborated responses compared to their baseline phases. Two of these participants even increased their mean frequency of elaborated responses during their generalization phases compared to their intervention phases. During the generalization phase, each participant demonstrated an increase in mean frequency of questions asked when compared to both their baseline and intervention phases.
CHAPTER V
DISCUSSION

Regardless of the postsecondary transition goals of individuals with ID, interacting with others in accordance with social norms and expectations is associated with access to and opportunities within the local community during young adulthood (Webb et al., 2004). With this in mind, the purpose of this study was to enhance participants’ conversational skills related to elaborating on responses and asking questions to peers during conversations. The goal of this intervention was to increase the duration of social interactions as well as increase the frequency of future social interactions between participants and their peers with and without disabilities. On a larger scale, this study investigated the effectiveness of explicit instruction using role-play within naturalistic settings when addressing social skills with college students with ID. Similar to related studies that addressed social skill acquisition among individuals with disabilities, this study utilized a multiple baseline across participants design to answer the research question that guided this study (Gengoux, 2015; Rollins et al., 2016; Koegel et al., 2012).

This chapter discusses and interprets the results outlined in the previous chapter. First, participant results are elaborated upon to include factors that may explain progress, regression, and inconsistent data points pertaining to both elaborated responses and questions asked during data collection sessions. Next, participant results are applied to the research question that guided this study with the intent of addressing the effectiveness
of explicit instruction using role-play within naturalistic settings on the conversational skills of college students with ID. This chapter concludes with implications for future research based on the findings of this study as well as limitations and final thoughts related to this research study.

Summary of Participant Results

This section begins with an individual description and interpretation of results for the three participants that progressed through baseline, intervention, and generalization phases within this research study. First, unique components of individual results related to elaborated responses and questions asked are discussed for each participant. Next, components common among all three participants are identified and elaborated upon.

Judy

Judy progressed through the baseline phase of this research study with relatively stable results pertaining to both elaborated responses and questions asked during conversations with peers. While Judy frequently conversed with peers during her baseline phase, her conversations during “Coffee Talk” were typically initiated by her peers. In other words, Judy rarely asked questions in order to engage her peers in conversation. When asked a question by a peer, Judy typically responded in a manner that answered the question asked. However, her responses rarely included information that continued the conversations. One to two word responses or responses characterized by a *yes* or *no* answer were common during Judy’s baseline phase.

During Judy’s intervention phase, data points during sessions 11 and 14 are noticeably inconsistent with the rest of her intervention phase related to elaborated responses. During session 11, Judy reported that she was getting over a cold and was not
feeling particularly well. Throughout session 14, Judy conversed with peers regarding a dance she had recently attended. These factors may help to explain why Judy’s frequency of elaborated responses was noticeably low during session 11 and noticeably high during session 14 compared to the rest of her intervention results pertaining to elaborated responses.

Contrary to Judy’s high frequency of elaborated responses during session 14, her frequency of questions asked was lower than her mean frequency during her intervention phase. Her frequency of questions asked during session 15 was also lower than her mean frequency during her intervention phase. A potential explanation for this is that, since Judy was talking about the dance she had recently attended, she was responding to a higher frequency of questions from her peers compared to other data collection sessions. Since Judy’s conversations during each of these sessions pertained to her experiences at the dance, Judy may have had fewer opportunities during these sessions to ask questions to her peers compared to other data collection sessions within her intervention phase.

Overall, Judy’s intervention phase demonstrates noticeable improvements related to both elaborated responses and questions asked during data collection sessions. Increases related to both elaborated responses and questions asked were also observed within campus dining halls during Judy’s generalization phase. Increases in mean frequency related to both variables during her generalization phase further emphasize conversational skills acquired by Judy over the course of this research study.

**Doug**

Variability among results related to both elaborated responses and questions asked is evident within Doug’s baseline phase. During his baseline phase, the frequency with
which Doug elaborated on responses and asked questions during conversations with peers was largely determined by the topics of conversations of peers in close proximity to Doug during “Coffee Talk.” If peers sitting near Doug were discussing topics of interest to Doug such as music or dancing, Doug typically joined his peers in conversation. However, if peers sitting near Doug were not discussing topics of interest to him, Doug largely refrained from conversation during data collection sessions within his baseline phase. Similar to Judy and Roger during their baseline phases, Doug typically did not initiate conversations with peers during his baseline phase. Instead, the conversations Doug typically participated in were initiated by peers sitting in close proximity to Doug during “Coffee Talk.”

While Doug’s mean frequency of both elaborated responses and questions asked increased during his intervention phase compared to his baseline phase, variability among data points within his intervention phase is evident. Interestingly, a negative correlation exists between Doug’s results related to elaborated responses and questions asked during data collection sessions 17 and 18. During data collection session 17, Doug talked extensively about an upcoming dance competition on campus. Several peers sitting in close proximity to Doug asked for additional details related to this competition. As a result, Doug was both interested in the topics of these conversations as well as given ample opportunities to respond to questions from his peers. This may help to explain why, during data collection session 17, Doug’s frequency of elaborated responses was higher than during any other baseline, intervention, or generalization data collection session.
Doug’s high frequency of elaborated responses during data collection session 17 may also help to explain his low frequency of questions asked during the same session. Since Doug was already talking about a topic of interest to him, he may have had less incentive to change the direction of conversations by asking questions to his peers. Conversely, during data collection session 18, Doug only elaborated on two responses (his lowest frequency of any intervention data collection session) but asked 14 questions (his second highest frequency of any intervention data collection session). This data collection session is indicative of a shift in Doug’s conversations with peers between his baseline and intervention phases. During Doug’s baseline phase, he typically waited to interact with his peers until a conversation of interest began in his proximity. During his intervention phase, Doug began asking peers questions related to his own personal interests. If peer responses indicated that Doug and his peers had similar interest areas, Doug would ask follow-up questions related to these interests. This accounts for the high frequency of questions asked during data collection session 18 as well as the significant mean frequency increase related to questions asked observed throughout Doug’s intervention phase. Similar to Judy, Doug maintained and even increased his rate of elaborating on responses and asking questions during his generalization phase.

Roger

Although Roger progressed through his baseline phase with relatively stable results related to elaborated responses, his frequency of elaborated responses during one data collection session (session 7) was significantly higher than during other data collection sessions during his baseline phase. During this particular session, peers sitting in close proximity to Roger were discussing the upcoming Super Bowl. One of Roger’s
favorite teams was playing in the Super Bowl and, during this data collection session, Roger elaborated on responses when responding to questions related to football in general as well as the Super Bowl specifically. However, similar to Judy and Doug during their baseline phases, Roger did not typically initiate conversations during his baseline phase. Instead, he typically joined existing conversations with peers if the topics of these conversations were of interest to him. If existing conversations among peers were not of interest to Roger, he typically did not converse with peers during baseline data collection sessions.

Similar to Judy and Doug, Roger increased his mean frequency of both elaborating on responses and asking questions during his intervention and generalization phases compared to his baseline phase. An analysis of the percentage of nonoverlapping data points illustrates that the intervention used within this research study was ineffective (PND=33%) related to increasing Roger’s frequency of elaborated responses during his intervention phase. However, this can be partially explained by the inconsistent results of data collection session 7 described above. Excluding the baseline data collection session during which Roger conversed with peers about football in general and the Super Bowl specifically, an analysis of PND would shift from ineffective (PND=33%) to very effective (PND=100%) based on the criteria used by Scruggs and Mastropieri (1998).

Interestingly, a slightly decreasing trend related to elaborated responses correlates with an increasing trend related to questions asked when inspecting the final data points of Roger’s intervention phase as well as his generalization phase (data collection sessions 18 through 22). A potential explanation for these results is that, since Roger was asking questions to his peers more consistently during these data collection sessions, there were...
fewer opportunities for Roger to respond to questions from his peers. In other words, conversations became more reciprocal over the course of these data collection sessions rather than being predominantly initiated and maintained by Roger’s peers. Another explanation for these results is that, since Roger’s intervention phase was shorter compared to the intervention phases of Judy and Doug, the benefits of the intervention used within this research study were not fully apparent until the end of the intervention and generalization phases of this study (data collection sessions 18 through 22). Variability within Roger’s intervention phase related to asking questions further supports the notion that these skills were developed at a later stage of the research study compared to Judy and Doug.

**Common Findings among Participants**

A common finding among all three participants was that, during their baseline phases, peers sitting in close proximity to participants largely determined the frequency and duration of their conversations. To a certain extent, whether or not participants conversed with peers depended on whether they were asked questions by their peers as well as whether the conversations of their peers were topics of interest to the participants. When participants did converse with peers during their baseline phases, these conversations were typically initiated and maintained by peers rather than the participants. This is evident by the low frequency of questions asked common among all three participants during their baseline phases as well as the variability within baseline phases for both Doug and Roger related to elaborated responses.

During intervention phases, participants initiated conversations with peers and maintained reciprocal conversations with peers more frequently than during their baseline
phases. This is evident by the fact that each participant increased the mean frequency with which they asked questions compared to their baseline phases. During intervention phases, participants asked both introductory questions to engage peers in conversations as well as expansive questions to learn more about their peers’ interests and experiences. In addition to initiating and maintaining conversations during “Coffee Talk,” asking questions allowed participants to engage their peers in conversations based on participant interests. This helps to account for increases in mean frequencies of elaborated responses among all participants during intervention phases compared to baseline phases. Rather than merely responding to questions asked by their peers as they did during their baseline phases, participants were extending conversations with their peers by consistently elaborating on their responses during their intervention phases. Discussing topics of interest likely served as a form of naturally occurring reinforcement that maintained a higher mean frequency of elaborated responses among participants during their intervention phases compared to their baseline phases.

Participant results related to elaborated responses and questions asked during the generalization phase are especially encouraging. This suggests that non-essential characteristics of “Coffee Talk” such as specific peers, time of day, or the layout of the room itself were not responsible for mean frequency increases of elaborated responses and questions asked during each of their intervention phases. Since there were fewer peers sitting at the same table as participants within campus dining halls compared to “Coffee Talk,” there were also fewer existing conversations for participants to participate in during their generalization phases. This meant that participants were increasingly required to both initiate and maintain conversations during their generalization phases in
order to interact with their peers with and without disabilities. Given the conditions above, participant results related to elaborated responses and questions asked demonstrate the ability to both generalize conversational skills across settings as well as display conversational skills within settings they frequently encounter outside the scope of this research study.

**Findings Related to the Research Question**

This study was developed and implemented with the goal of examining the effectiveness of explicit instruction using role-play within naturalistic settings on conversational skills related to elaborating on responses and asking questions during conversations with peers among college students with ID. Based on the results presented and analyzed within Chapter IV and Chapter V of this research study, explicit instruction using role-play within naturalistic settings supported participants with both enhancing conversational skills related to elaborating on responses and asking questions as well as generalizing these skills across settings participants frequently encountered during their daily lives at the time of this study. The purpose of this section is to address components of explicit instruction using role-play within naturalistic settings outlined within relevant literature on the topic that contributed to the effectiveness of this intervention within this research study.

Literature presented in Chapter II of this dissertation emphasizes that students with ID often do not acquire social skills at the same rate as their typically developing peers (Walton & Ingersoll, 2013). Unlike their typically developing peers, students with ID often do not acquire social skills informally through observation and interaction with
their peers alone. Instead, students with ID often require explicit instruction related to specific social skills needed to initiate and maintain relationships with peers.

Within this research study, three components of explicit instruction used to enhance conversational skills among college students with ID included modeling, role-play, and errorless learning. Within the realm of social skills instruction, modeling involves demonstrating examples and non-examples of targeted social skills during instruction (Allsopp, Santos, & Linn, 2000). This allows students with intellectual disabilities to differentiate between socially appropriate and socially inappropriate forms of social interaction. Within this research study, the PI modeled examples and non-examples of social skills related to asking questions, elaborating on responses, introducing oneself, active listening, and appropriate body language during conversations with peers. During instructional sessions, modeling allowed participants to better understand social skills likely to result in social reinforcement from their peers as well as social skills unlikely to result in social reinforcement from their peers.

While modeling was a necessary component of explicit instruction within this research study, frequent opportunities to practice these skills through role-play were needed to truly facilitate skill acquisition among participants. When using role-play during explicit social skills instruction, students are provided with both a specific social task as well as a practical context in which to demonstrate the social task (Borbely et al., 2004). Within this study, contexts in which to demonstrate conversational skills were selected based on participant recreational interests as well as settings participants frequently encountered during their daily lives. This is based on a principle of community-based instruction that emphasizes the importance of naturally occurring
reinforcement when facilitating social skill acquisition among students with ID (Bates et al., 2001).

Research related to social skill instruction among students with ID emphasizes that skill generalization is not an inherent component of instruction (Freeland & Noell, 2002). With this in mind, during the role-play portion of explicit instruction provided to participants, three distinct strategies were used to promote social skill generalization. First, settings in which role-play took place as well as individuals participating in role-play scenarios varied among instructional sessions. Varying components of instructional contexts is an example of teaching loosely, a skill generalization strategy used to prevent students from depending on non-essential characteristics within a social context in order to demonstrate learned social skills (Alber-Morgan et al., 2007). Second, rather than using the same social context for role-play sessions, social contexts varied based on the specific social skills being addressed. For example, participants were asked to initiate conversations with both new peers and familiar peers and maintain conversations related to a diverse spectrum of topics such as recreational interests, current events, college courses, and future career goals. Providing a diverse spectrum of contexts and situations within which to practice social skills is a core component of general case instruction, a skill generalization strategy designed to prepare students for unique components of social situations they are likely to encounter outside of instructional settings (Kleeberger & Mirenda, 2010). Finally, contexts in which role-play occurred were selected based on participant recreational interests as well as settings participants frequently encountered during their daily lives. This strategy is an example of programming common stimuli, a
strategy that involves incorporating naturally occurring cues into instructional settings to facilitate social skill generalization (Mesmer et al., 2007).

During explicit instructional sessions, errorless learning was used to promote fluent acquisition of conversational skills as well as to prevent the development of poor habits related to conversational skills that could serve as barriers to social interaction. When using errorless learning, the goal is to minimize the severity of errors or prevent them from occurring altogether (Kern et al., 2005). Within this study, the PI frequently paused instructional sessions in order to provide feedback to participants. This allowed participants to engage in socially acceptable forms of conversational skills. Ultimately, through repeated practice of socially acceptable forms of conversational skills, errorless learning during instructional sessions allowed participants to come into contact with naturally occurring reinforcement in the form of social attention from peers.

To summarize, conversational skill acquisition and generalization among participants within this study can be attributed to the use of an intervention package demonstrated through research as an effective approach for providing social skill instruction to students with ID. Through the use of explicit instruction, participants were provided with examples and non-examples of conversational skills as well as frequent opportunities to practice these skills during role-play sessions. During explicit instruction using role-play sessions, participants were given immediate feedback to increase the probability their conversational skills would be reinforced with social attention within instructional settings. Finally, skill generalization was purposefully integrated into instructional sessions to increase the probability participants both displayed...
conversational skills within non-instructional settings as well as accessed naturally occurring reinforcement within non-instructional settings.

**Implications for Future Research**

The effectiveness of the intervention package used within this study has several implications for future studies addressing social skills among college students with ID. Including role-play within explicit instructional sessions provided participants within this study with opportunities during each instructional session to practice targeted conversational skills. Consistent practice opportunities translated to increases in mean frequencies of both elaborated responses and questions asked during intervention phases for each participant within this research study. In addition, providing instruction within naturalistic settings was beneficial within this study for two main reasons. First, instructional settings were relevant to participants because they were settings participants frequently encountered during their daily lives. Second, instructional settings were meaningful to participants because they were selected based on participant recreational interests. Finally, integrating generalization strategies such as teaching loosely, general case instruction, and programming common stimuli within instructional sessions facilitated skill generalization among participants within this research study. Incorporating these components into future research studies may enhance the effectiveness and efficiency of social skill instruction provided to college students with ID.

**Limitations**

Despite the effectiveness of explicit instruction using role-play within naturalistic settings on the conversational skills of college students with ID evident within this
research study, limitations related to the study itself must be considered when interpreting these results. First, the duration and design of this research study do not permit an analysis of skill maintenance over time for the three participants within this study. This study was implemented over the course of an eight-week period and did not include a maintenance phase. Among all three participants, increases in mean frequencies related to both elaborated responses and questions asked during conversations with peers are encouraging. However, it cannot be determined whether or not these increases in conversational skills will be maintained over time for each participant. Future research studies that include longer study durations and maintenance phases are needed to appropriately assess whether explicit instruction using role-play within naturalistic settings truly facilitates long-term maintenance of conversational skills among college students with ID.

Second, potential variables related to participant history and maturation should be considered when analyzing results of this study. Since this research study began on the first day of a new academic semester, it is possible that participant growth pertaining to conversational skills could be partially explained by participants becoming acclimated to campus life over the course of this study. In addition, since “Coffee Talk” began during the same academic semester as this research study, it is possible that participant growth pertaining to conversational skills could be partially explained by participants becoming increasingly comfortable within the “Coffee Talk” setting over the course of this research study. Also, during the same academic semester as this research study, participants received skill instruction related to social awareness and social decision-making through a course that was part of their postsecondary university program. While the content of
this course did not directly address the conversational skills targeted within this study, it is possible that social skills acquired through this course influenced participant performance within this research study. The use of staggered baselines within this study helps to account for these variables. Specifically, for each participant, mean frequency increases related to elaborated responses and questions asked did not increase substantially until participants progressed to the intervention phase of this study. However, the potential influence of each of the variables explained above should be considered when interpreting results within this study.

Finally, collecting data within “Coffee Talk” enabled the collection of results within a naturally occurring context similar to contexts encountered by participants outside of data collection sessions. While this may have helped to foster skill generalization among participants within this research study, it also introduced variables within data collection sessions that should be considered when interpreting results within this research study. Since participants infrequently initiated and maintained conversations with peers during their baseline phases, results obtained during baseline phases partially depended on whether peers sitting in close proximity to participants initiated and maintained conversations with participants. In addition, similar to their typically developing peers, the frequency with which participants elaborated on responses and asked questions during each phase of this study depended partially on factors such as college course work, current events, and recreational activities on and off campus. Each of these variables was not explicitly controlled for within this research study. However, each of these variables likely influenced participant results related to both elaborated responses and questions asked during each phase of this research study.
Conclusion

The current study demonstrates an increase in mean frequencies of elaborated responses and questions asked for each participant as well as a PND analysis of effective or highly effective related to each variable for two of the three participants. In addition to enhanced conversational skills displayed by participants within this research study, skill generalization observed of participants within camping dining halls further emphasizes the benefits of explicit instruction using role-play when addressing conversational skills among college students with ID. Specifically, providing instruction within settings that are both relevant based on the everyday experiences of students as well as meaningful based on the recreational interests of students has the potential to enhance social skill acquisition among young adults with intellectual disabilities. Providing instruction within these naturally occurring settings also allows students to access naturally occurring reinforcement contingencies that are ultimately needed to maintain social skill acquisition in the absence of instructional interventions and supports. With this in mind, explicit instruction using role-play within naturally occurring settings can support students with ID as they strive to achieve postsecondary transition goals autonomously and independently as young adults.
References


doi: 10.1177/0741932508324297


doi: 10.1177/1053451211406542


APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL
DATE: November 23, 2016

TO: Jason Robinson

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [984503-2] Examining The Effectiveness Of Teaching Prerequisite Social And Self-Determination Skills Related To The Transition Goals Of Young Adults With Intellectual Disabilities

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: November 23, 2016

EXPIRATION DATE: November 23, 2017

REVIEW TYPE: Expedited Review

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of November 23, 2017.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.
This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNC) IRB's records.
APPENDIX B

CONSENT FORM FOR HUMAN PARTICIPATION IN RESEARCH
My name is Jason Robinson and I am a doctoral student at the University of Northern Colorado. I am currently researching conversational skills among young adults with intellectual disabilities. With your permission, I would like you to participate in a research study. Participating in this research study will involve participating in classroom instruction and practice opportunities on campus and within the community related to conversational skills. This participation will involve 2-4 hours per week for approximately 12 weeks. This research study will benefit you with learning more social skills, and the field of special education by investigating and learning about how young adults acquire and apply conversational skills they will need to achieve their employment goals after college graduation. This information can be made available to other school districts, colleges, and universities and serve as a guide for maximizing the effectiveness of services and supports provided to adolescents and young adults.

It is possible that, due to my affiliation with the University of Northern Colorado and the small number of students currently enrolled in the GOAL program, your confidentiality within this research study will be difficult to maintain. To safeguard against this risk, personal information including your gender, age, and specific course of study will not be included in this research study. In addition, rather than mentioning the University of Northern Colorado or the GOAL program specifically, broader terms such as “a University in the US” and “a postsecondary university program for students with disabilities” will be used. However, despite these efforts to maintain your confidentiality, there is a strong possibility that individuals reading this research study could discover your identity.
Your data will be kept confidential and your name will not be used when sharing information learned through this study. Results obtained through this research study will be collected for the purpose of allowing us to correctly report the information. However, all data will be kept in a locked cabinet in a locked room.

Please feel free to contact me via phone or e-mail if you have any questions or concerns about the study. If you would like to participate in the study, please read the passage below. Thank you for assisting me in my study.

Sincerely,

Jason Robinson

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant’s Full Name: ________________________________ Date:

________________________________________________________

Researcher’s Full Name: ________________________________ Date:

________________________________________________________
APPENDIX C

SAMPLE LESSON PLAN USED DURING INSTRUCTIONAL SESSIONS
Participant Name: Doug
Date: February 6, 2017

**Asking Follow-Up Questions/Making Appropriate Eye Contact**

1) Establishing and Analyzing Progress Towards Social Interaction Goals
   a. Previous goal: Asking Jill what her favorite movies/television shows are.
   b. New goal: Talking about the Super Bowl half-time show.

2) Providing Explicit Instruction Related to Conversational Skills
   a. Asking follow-up questions.
   b. Making eye contact during conversations with peers.

3) Modeling Examples and Non-Examples of Conversational Skills
   a. Relevant v. irrelevant examples of follow-up questions.
   b. Appropriate eye contact v. inappropriate eye contact (staring, looking around the room, looking at the floor, looking at your cell phone).

4) Role-Play Related to Conversational Skills
   a. Making “small talk” with store employee.
   b. Asking follow-up questions during dinner with PI.
   c. Immediate feedback from PI.

5) Developing Self-Monitoring Strategies Related to Conversational Skills
   a. Pen and paper to track frequency of follow-up questions during upcoming “Coffee Talk” session.
   b. Check-ins between instructional sessions to reflect on progress, voice concerns, and/or update social interaction goals Wednesday and Friday mornings at 11:00 a.m.