The Effectiveness of Peer Supports for Students with Severe Disabilities in Inclusive Work-

Based Settings

BY

LINDSAY SARAH ATHAMANAH
B. A., University of Minnesota – Twin Cities, cum laude, 2001
M. S., University of Wisconsin – Madison, 2003

THESIS

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Defense Committee:

    Dr. Lisa S. Cushing, Chair and Advisor
    Dr. Christine L. Salisbury
    Dr. Daniel M. Maggin
    Dr. Norma Lopez-Reyna
    Dr. Matthew Brock, The Ohio State University

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LIST OF ABBREVIATIONS

AAC   Alternative and Augmentative Communication

CPS   Chicago Public Schools

CTE   Career and Technical Education

CWPT   Class-Wide Peer Tutoring

IDEA   Individuals with Disabilities Education Act

IEP   Individual Education Program

IOA   Inter-Observer Agreement

NLTS   National Longitudinal Transition Study

PALS   Peer Assisted Learning Strategies

PMI   Peer-Mediated Interventions

PND   Percentage of Non-Overlapping Data

SWSD   Students with Severe Disabilities

WIOA   Workforce Innovation and Opportunity Act

YWSD   Youth with Severe Disabilities

SUMMARY

Peer-mediated interventions are evidence-based practices that have demonstrated to improve academic and social skills of students with severe disabilities and their peers without disabilities while working in academic and non-academic classrooms (Carter, Cushing, Clark, & Kennedy, 2005; Cushing & Kennedy, 1997). However, little is known about the effects of peer-mediated interventions on vocational and employability skills of students with severe disabilities and their peers in work-based learning settings. Students with severe disabilities do not necessarily learn vocational and employability skills in high school that can be applied to future employment (Agran, Hughes, Thoma, & Scott, 2016). They may also have limited access to inclusive vocational education or work-based learning settings in high school to learn, work, and practice skills with peers without disabilities (Guy, Sitlington, Laresen, & Frank, 2009). Moreover, inclusion in general education settings with peers without disabilities is predictive of later transition success for students with severe disabilities (Test et al., 2009). Therefore, students with severe disabilities should be learning all skills alongside their same-aged peers in inclusive school environments. The purpose of this study was to examine the effects of peer-mediated interventions on the independent engagement in work tasks and social interactions of students with severe disabilities and their peers in a high school work-based learning setting. Furthermore, this study evaluated the quality of and the number of social interactions during work activities of both students with and without severe disabilities.

A multiple baseline research design across participants with generalization probes investigated work task independence and social interaction outcomes for five dyads of high school students. Dyads were comprised of one student with severe disabilities and one peer without disabilities. The work-based activity involved collecting classroom and office recycling

in the high school. Peers were trained on research-based peer support strategies to implement when working with the student with severe disabilities during the work-based activity. Results revealed moderate to significant level changes between baseline and intervention phases across all dyads for increased work task independence and social interactions. Furthermore, the quality of social interactions improved after implementing the peer supports training for most dyads as well as increases were noted in the number of social initiations made by the students with severe disabilities to socialize with their peers.

With this study, the success of peer-mediated interventions has been demonstrated by the increase in vocational skills and social interactions for students with severe disabilities when working in inclusive employment settings. This study is the first to use peer-mediated interventions in a high school work-based learning setting. The findings, therefore, substantiate the peer-mediated interventions research that show improved academic, social, and vocational skills for students with severe disabilities in inclusive settings. In addition, it indicates that peer-mediated interventions can be used to increase employability skills necessary for future employment. Implications for practice, research, and study limitations are presented.

I. INTRODUCTION

Youth with disabilities, particularly those with significant support needs, successful post-secondary employment remains an unattainable dream. If youth with severe disabilities learn skills to maintain post-school employment, they may experience increased personal independence, improved financial well-being, and an improved quality of adult life (Levinson & Palmer, 2005; Schalock, 2000). Unfortunately, in recent years the employment rate for adults with cognitive disabilities was at 24.2% while the employment rate for adults without disabilities was at 77.6% (Erickson, Lee, & von Schrader, 2016). According to Newman, Wagner, Cameto, and Knokey (2009), data from the National Longitudinal Transition Study – 2 (NLTS-2) reported students with autism spectrum disorder were less likely to work full-time compared to people with other disabilities. Youth with multiple disabilities were the most likely to work five hours or less per week, while youth with intellectual disabilities were paid the lowest hourly wage compared to other disabilities (Newman et al., 2009). Furthermore, research studies investigating interventions to build vocational skills for youth with severe disabilities and potentially impact post-school employment outcomes have significantly decreased over the past 15 years (Cannella-Malone & Schaefer, 2015). The combination of low employment rates and fewer studies that focus on vocational skills portend a dismal picture of the future employment possibilities for youth with severe disabilities.

When P.L. 94-142 was passed in 1975, students with severe disabilities were guaranteed access to a free and appropriate education in the public schools. Since then, the federal government has reauthorized the Individuals with Disabilities Education Act (IDEA) mandating the continued improvement of services provided to students with severe disabilities to enhance their transition outcomes (i.e., employment, postsecondary education, independent living). Test

et al. (2009) conducted a comprehensive literature review and identified 16 in-school secondary transition-related interventions that positively predicted post-school outcomes for students with disabilities. Predictors that demonstrated a moderate level of evidence for positive employment outcomes were inclusion in general education, paid employment/work experiences, vocational education, and work study (Test et al., 2009). Additional research has supported the implementation of inclusive paid work experiences in high school to provide students with severe disabilities opportunities to learn basic workplace competencies as well as other valuable life skills such as social interactions and making friends in authentic settings (Benz, Yovanoff, & Doren, 1997; Kaehne & Allan, 2011). Furthermore, by integrating students with severe disabilities into authentic work settings in the community results in better post-school outcomes for these students such as increased pay, expanded work hours, improved quality of life, and opportunities to learn real-life skills required for successful employment (Beyer, 2012; Storey, 2000; Turnbull, Turnbull, Wehmeyer, & Park, 2003). However, research indicates that students with severe disabilities who do not receive vocational or life-skills training while still in high school have poorer transition outcomes (Bobroff & Sax, 2010; Government Accountability Office, 2012; National Technical Assistance Center on Transition, 2016). In order to potentially increase employment rates for adults with disabilities, including those with severe disabilities, it is imperative that youth with severe disabilities be afforded opportunities to learn and practice vocational and social skills in work-based learning settings (Bobroff & Sax, 2010; Carter, Sisco, Melekoglu, & Kurkowski, 2007). Gaining these foundational skills while in high school may lead to post-employment success (Ju, Zhang, & Pacha, 2012) and greater independence.

Building Skills for Youth with Severe Disabilities in High School

One way to prepare students with severe disabilities for post-school employment is to implement the in-school predictors identified by Test and colleagues (2009) that were associated with a greater likelihood of employment. The following section will describe each predictor and its evidence base in school settings.

In-school predictors for positive post-school outcomes. The practice of including students with severe disabilities in general education classes has shown to predict positive outcomes in employment, postsecondary education, and independent living (Test et al., 2009). Furthermore, inclusion in school environments with students without disabilities has improved academic content knowledge (Jameson, McDonnell, Polychronis, & Riesen, 2008; Jimenez, Browder, Spooner, & DiBiase, 2012), academic engagement and social interactions (Carter et al., 2007; Carter, Cushing, Clark, & Kennedy, 2005), and vocational skills (White & Weiner, 2004) for youth with severe disabilities. Moreover, academic and social interaction skills have increased for the peers without disabilities serving as supports (Cushing & Kennedy, 1997).

In addition to inclusion, access to occupational courses, vocational education, and work experiences have documented positive transition outcomes (Test et al., 2009). Students with severe disabilities who have spent more time engaged in occupational courses, completed vocational education programs, or participated in real-life work experiences while in high school, have better post-school employment outcomes (Heal & Rusch, 1995; Test et al., 2009). Conversely, the lack of access to quality career and technical education programs highlights the potential disadvantage that students with severe disabilities bring to post-school employment (Baer, Daviso, McMahan Queen, & Flexer, 2011).

The creation of a social network (e.g., student supports without disabilities) to collaborate on goals and promote opportunities for meaningful engagement with students with severe

disabilities has also been shown to improve transition outcomes (Rowe et al., 2015; Test et al., 2009). Therefore, by utilizing these predictors with at least a moderate level of effectiveness as a guide for creating high-quality interventions for special educators and school personnel, students with severe disabilities may be more successful in their post-school employment outcomes.

Acquiring vocational and social skills in high school. Learning vocational and social interaction skills in inclusive environments while in high school has emerged as an option in preparing students with severe disabilities for post-school employment (Agran, Hughes, Thoma, & Scott, 2016; White & Weiner, 2004). Career and technical education (CTE) courses continue to be a primary means of teaching vocational skills to students with and without severe disabilities; however, the number of CTE classes offered in high school are often limited (Guy, Sitlington, Larsen, & Frank, 2009). Insufficient access to explicit training of vocational skills in inclusive environments for students with severe disabilities could hinder their chance at post-school employment.

Social skills are comprised of a combination of interactions (e.g., greetings, questions, comments) and social exchanges that create conversations. Social skills also embrace the understanding of others' social enjoyment, comprehending other people's perspectives, and the ability to infer the meaning of non-verbal or body language used in every day communication activities (Bellini, Peters, Benner, and Hopf, 2007). Youth with severe disabilities demonstrate substantial difficulties in identifying and utilizing appropriate social skills (Carter & Hughes, 2005). Additionally, high schools often provide few opportunities and little teacher support and guidance for when students with and without severe disabilities socially interact together (Carter & Hughes, 2005; Hughes et al., 2012). Thus, students with severe disabilities may enter employment settings at a disadvantage because they do not grasp the social skills necessary to

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interact appropriately with coworkers. Social and communication skills for the workplace (i.e., employability skills) are described as general competencies required for employment wherein both students with and without severe disabilities would utilize these skills when working (Guy et al., 2009; Ju et al., 2012). According to Ju et al. (2012), employers ranked basic skills (e.g., reading, writing, and communicating), basic work skills (e.g., punctuality, problem solving), and social skills as the top three skill areas critical for maintaining an entry-level job. Similarly, Agran and colleagues (2016) surveyed special educators, transition coordinators, vocational rehabilitation counselors, and job coaches to identify the top work-related social skills that are important for employment. Several of the necessary work-related social skills were: (a) seeking clarification for unclear directions, (b) following instructions, (c) requesting assistance, and (d) interacting well with customers or clients. Students with severe disabilities may have difficulty maintaining employment because they are often lacking preparation and direction in how to engage in work-related social skills (Agran et al., 2016). Moreover, students with severe disabilities need to come prepared with employability skills prior to starting employment because employers believe it is not their responsibility to teach these skills (Agran et al., 2016).

Employment settings to practice vocational and employability skills. Work-based learning settings in high school can be an effective environment to teach vocational and employability skills to students with and without severe disabilities (Agran et al., 2016; Guy et al., 2009). Authentic work experiences during high school enable students with severe disabilities to learn job expectations, social interactions, and life skills in a familiar space (Kaehne & Allan, 2011). Unfortunately, the length of the school day restricts the chance to create additional class periods dedicated to addressing work and employability skills (Bobroff & Sax, 2010). Therefore, special educators must find ways to embed teaching these skills into

academic and non-academic classes as well as work-based learning settings during the school day.

One way to address work and employability skills for youth with severe disabilities is supported employment. Supported employment involves developing vocational and employability skills while integrated in an employment setting utilizing a job coach for guidance and support (Storey, 2000). This practice differs significantly from a sheltered workshop setting where youth are trained to complete work skills in a segregated environment. In supported employment, the job coach teaches, prompts, models, and supports work and employability skills required for the job alongside the youth with severe disabilities. While job coaches are valuable to enhancing skills in the work place, they may unknowingly inhibit socialization between the youth with and coworkers without severe disabilities in the work place (Storey & Garff, 1999). Additionally, a lack of opportunities to socialize with coworkers without disabilities for youth with severe disabilities may be due to the supported employment model implemented by the job coach (Storey, 2000). Therefore, consistent access to social interactions in integrated employment settings with natural supports (e.g., coworkers) are ideal and considered by families, educators, and self-advocates to be the preferred post-school work environment in contrast to sheltered workshops (Migliore, Mank, Grossi, & Rogan, 2007; Storey, 2000).

Peer Support Strategies for Teaching Vocational and Employability Skills

While supported employment has demonstrated some positive effects for post-school employment outcomes of students with severe disabilities, one strategy that may also prove useful for teaching vocational and employability skills before students' graduate are peer supports. Peer supports are an effective and evidence-based intervention for students with severe disabilities to address academic and social skills in inclusive educational environments (Carter &

Hughes, 2005). The intervention is facilitated by a teacher or paraprofessional and utilizes peers without disabilities to provide individually tailored social language and academic support to students with severe disabilities (Carter, Cushing, & Kennedy, 2008; Carter & Kennedy, 2006). Different types of peer support interventions (i.e., peer assisted learning strategies [PALS], class wide peer tutoring [CWPT], peer buddy programs, peer support arrangements) have shown to improve academic and social outcomes for a wide age range of students with and peers without disabilities.

Carter and Kennedy (2006) identified the four main components included when implementing a peer support program: (a) student selection, (b) peer training, (c) peer-delivered support, and (d) adult monitoring. Student selection includes identifying peers without disabilities to work with the students with severe disabilities in academic and non-academic settings. Next, an adult facilitator trains peers without disabilities to work with a student with severe disabilities. This entails equipping peers without disabilities with specific knowledge about the students as well as basic strategies to support the student with severe disabilities. Then, peers implement the basic strategies to assist and support the students with severe disabilities with academic and/or social skills under the guidance of a paraprofessional or special education teacher. Finally, adults monitor the dyad by providing feedback on strategies and supervising the interactions in the academic or non-academic setting.

The primary goal of peer supports is to use peers as natural supports to deliver critical academic and social supports to students with severe disabilities in learning environments (e.g., general education classroom, lunch room, gym class) to promote peer interaction (Carter & Hughes, 2005). Current peer support research has demonstrated positive social and academic outcomes for students with and without severe disabilities in general education classrooms

(Carter et al., 2007; Cushing & Kennedy, 1997), employment preparation skills in community-based environments (Bobroff & Sax, 2010; White & Weiner, 2004), and social skills in integrated employment settings (Storey & Garff, 1999). Most research on peer supports has focused on improving academic knowledge, social skills, and access to curriculum for students with severe disabilities in academic and non-academic school settings. Although several studies have assessed the effectiveness of peer supports in integrated work settings for youth with severe disabilities (Kaehne & Beyer, 2013; Storey & Garff, 1999), to date, no research has directly examined the effectiveness of peer supports in high school work-based learning settings to improve work and employability skills. Bobroff and Sax (2010) conducted a study with dyads of students with disabilities using peer supports that improved job interview and social skills for the students involved. Moreover, Storey and Garff (1999) noted that when peer supports were implemented with dyads of young adults with and without disabilities in an integrated employment setting teaching job skills and social skills, there was an improvement in social skills. Importantly, data were not collected on student work skill development while on the job (Storey & Garff, 1999). Neither study targeted improvement in both work and social skills in an integrated employment setting. Therefore, the impact of implementing peer supports to build these skills in an inclusive work-based learning setting for students in high school, with *and* without severe disabilities warrants additional research.

Theoretical Framework: Ecological Systems Theory

The concept of peer support is grounded in Bronfenbrenner's Ecological Systems Theory (1976). This theory focuses on the interactions between people (e.g., student, family, teachers, administrators, policy makers), their environments (e.g., home, work, community, school), and how those interactions affect the person at the center of the system (e.g., student with severe

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disabilities) (Duerden & Witt, 2010). Bronfenbrenner (1976) suggested that research be conducted in inclusive and authentic educational placements to fully understand how the student with severe disabilities, people involved with the student, and environmental factors may interact with each other in different contexts. The ecological systems theory guides the practice of peer supports and attempts to make sense of the experience between the student with severe disabilities and the peer when collaborating on vocational and social skills in an integrated school environment.

Bronfenbrenner's model consists of four systems nested within each other. A fifth system, the chronosystem, portrays how these systems affect the student with severe disabilities over time. An adapted model of Bronfenbrenner's ecological systems theory is displayed in Figure 1.1.
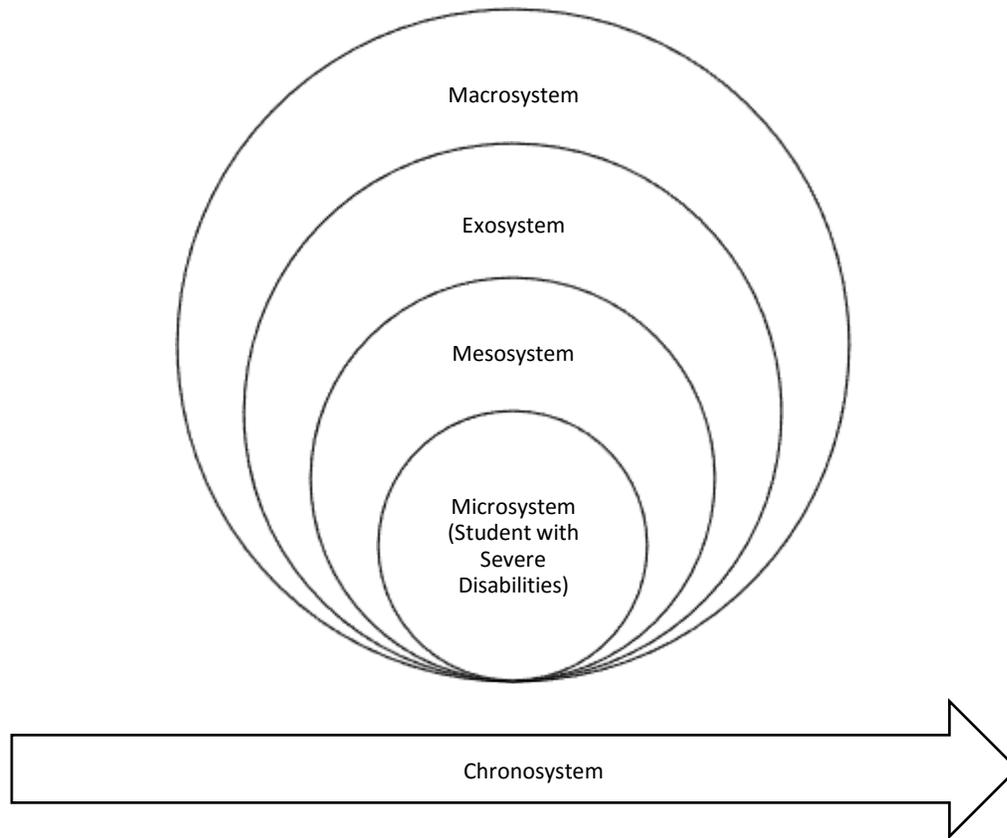
Figure 1.1: Ecological Systems Model. Adapted from Trainor, A. A. & Kim, S. (2013).

The innermost circle is the *microsystem*. It includes the interactions between the student

and familiar, important people (e.g., parents, family, peers) or settings (e.g., home, school,

community center, etc.) with whom the student engages regularly (Bronfenbrenner, 1994). For

example, when using the peer supports intervention, the microsystem attempts to interpret the

relationship between the student with severe disabilities and the general education teacher and

the effects of those interactions on each other. The *mesosystem* describes the interaction between

two or more microsystems that directly impact the student (Bronfenbrenner, 1976; 1994). In

peer supports, this level depicts the interaction amongst the student with severe disabilities

(microsystem), the general education teacher (microsystem), and the inclusive general education

classroom (microsystem) and strives to understand how these interactions affect the student. The third system, the *exosystem*, embodies the indirect interactions among the microsystems (Bronfenbrenner, 1994). For example, the exosystem seeks to understand the impacts of the interactions between the parents and the general education teacher, family or friend social networks, or community, that may indirectly affect the student during the peer supports intervention (Bronfenbrenner, 1986). As Bronfenbrenner points out, the *macrosystem* consists of the "overarching institutions of the culture or subculture, such as the economic, social, educational, legal, and political systems, of which local micro-, meso-, and exo-systems are the concrete manifestations," (Bronfenbrenner, 1976, p. 6). When peer supports is implemented, the macrosystem pursues to discern the interplay among society, culture, acceptance, and treatment of individuals with disabilities and how these interactions may influence the student with severe disabilities and the behavioral outcomes of the peer support intervention (Bronfenbrenner, 1976). The chronosystem (Bronfenbrenner, 1988) represents the final system of the ecological systems theory. It examines the outcomes of all the systems interacting together across the student's lifespan.

In summary, the ecological systems theory attempts to provide an understanding of how the implementation of peer supports affects transition-aged students with and without severe disabilities learning vocational and employability skills in work-based learning settings. This theory may help in identifying and explaining how the different systems influence the outcomes of peer supports for both students with and peers without severe disabilities in integrated settings. Therefore, the ecological systems theory provides an understanding of the interaction between each microsystem (e.g., peers, paraprofessionals, inclusive work-based learning setting) and how each system impacts the student with severe disabilities and post-school outcomes.

Purpose of Proposed Study and Research Questions

Post-school employment for students with severe disabilities increases the likelihood of an improved quality of adult life. By learning vocational and employability skills while still in high school, students with severe disabilities may build the necessary foundation of employment-ready skills (Rowe et al., 2015). Additionally, working in integrated employment settings provides students with opportunities to engage in community participation activities, advocacy skills, opportunities for economic independence, and life-long learning advantages (Storey, 2000). However, there remains a dearth of research to evaluate vocational and social skills interventions for students with severe disabilities while in school. Therefore, the proposed study evaluates the impact of a peer supports intervention on the vocational and social skills for students with and without severe disabilities in an inclusive high school work-based learning setting. The two research questions posed in this study are:

1. Does the implementation of peer supports demonstrate a functional relation in the percentage of independent work tasks for students with severe disabilities in an authentic high school work-based learning activity?

2. Does the implementation of peer supports demonstrate a functional relation in the percentage and quality of social interactions between students with and without severe disabilities in an authentic high school work-based learning activity?

II: LITERATURE REVIEW

Peer Mediated Interventions for Building Vocational or Social Skills of Youth with Severe

Disabilities in Inclusive Employment Settings: A Literature Review

Despite the importance of vocational and social skills for post-school success (Test et al., 2009), there is limited research on interventions focusing on these skills for youth with severe disabilities (Cannella-Malone & Schaefer, 2015). There is, as well, some research to suggest that fewer opportunities exist for youth with severe disabilities to participate in career and technical classes that teach vocational and social skills in high school (Guy, Sitlington, Larsen, & Frank, 2009). Without opportunities to learn and practice these skills, youth with severe disabilities (YwSD) remain unprepared for post-school employment. Current research substantiates that learning vocational and social skills in high school increases the likelihood for YwSD to obtain and maintain post-high school employment (Agran, Hughes, Thoma, & Scott, 2016). Test and colleagues (2009) noted that when high school students with severe disabilities were engaged in inclusive work experiences with access to learning specific occupational skills, post-school outcomes flourished. Additionally, the quality of life for YwSD improves when engaged with peers without disabilities in authentic environments (Schalock, 2000). However, employment preparation activities often take place in the classroom instead of in an integrated community workplace (Guy et al., 2009). The lack of opportunities to practice vocational and social skills with peers without disabilities may be one reason why YwSD are unprepared for post-school employment.

In an attempt to better prepare YwSD for positive post-school outcomes, several policies have been enacted that emphasize the necessity for transition services and supports while in high school. In 1990, the Individuals with Disabilities Education Act (IDEA) mandated that school

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personnel implement transition services and supports for students with disabilities no later than age 16 and link those services to school, post-school services, and adult service providers. The subsequent reauthorizations of IDEA (1997, 2004) have enhanced transition supports by promoting services to take place in the least restrictive environment, providing a continuum of services throughout the student's academic career, and requiring the demonstration of students' progress in the general education curriculum. The Workforce Innovation and Opportunity Act (WIOA) of 2014 built upon the transition requirements set forth in IDEA 2004 and enacted education, job training, and skill development in integrated employment settings for youth, including those with severe disabilities, to assist in preparing for post-school employment, (U.S. Department of Education, 2016). Both IDEA (2004) and WIOA (2014) emphasized the need for YwSD to learn vocational and social skills while still in high school in order to advance transition outcomes. Despite policy initiatives, school personnel continue to struggle with teaching vocational and social skills in high school citing a myriad of reasons such as lack of time, lack of staff, lack of access to effective interventions, and the inability to infuse these skills into existing education programs (Bobroff & Sax, 2010; Certo et al., 2003). Therefore, school personnel require efficient, research-based interventions that can be implemented into authentic work opportunities to prepare YwSD for post-school employment success.

A majority of YwSD currently receive vocational and social skills training in segregated settings (Cannella-Malone & Schaefer, 2015). Youth with severe disabilities have learned vocational skills (Mitchell, Schuster, Collins, & Gassaway, 2000), independent living skills (Taylor, Collins, Schuster, & Kleinert, 2002), money handling skills (Rowe, Cease-Cook, & Test, 2011), and social skills and executive functioning skills (Bock 2007; Fisher & Happé, 2005) in segregated settings. Thus, researchers question the generalizability of skills acquired in

isolated settings into integrated work environments (Smith & Gilles, 2003; White & Weiner, 2004). At the same time, research has shown that YwSD who earned high school credits in occupational preparation programs were more likely to be engaged in post-school employment (Test et al., 2009). Unfortunately, opportunities to enroll in these types of programs have declined dramatically since the early 2000s (Guy et al., 2009).

In addition to the decrease of vocational preparation programs, few opportunities exist in high school for YwSD to socially interact with their peers without disabilities (Carter, Sisco, Chung, & Stanton-Chapman, 2010). Youth with severe disabilities are more likely to be socially isolated from their peers and spend most of their school day in segregated settings. This lack of inclusion affects their ability to learn and practice social interaction skills in authentic environments with natural supports (Hughes et al., 2012). Students, their families, and professionals want YwSD to be prepared with the necessary skills for the chance to work in an integrated employment setting post-school like their same-aged peers without disabilities (Migliore, Mank, Grossi, & Rogan, 2006). Thus, without vocational preparation programs and opportunities to socially interact with peers without disabilities in authentic work environments while in high school, YwSD may not secure or maintain gainful integrated employment post-school.

Peer-mediated interventions (PMI) are an evidenced-based strategy that incorporates teaching students with and without disabilities "to support their interactions and shared work together" (Schaefer, Cannella-Malone, & Carter, 2016, p. 2). This shared work involves learning academic, social, and vocational skills in both academic and non-academic school settings (Carter et al., 2010; Cushing & Kennedy, 1997; Hochman, Carter, Bottema-Beutel, Harvey, & Gustafson, 2015). The majority of research has examined the influence of PMI on academic and

social skills for YwSD in the general or special education classroom (Schaefer et al., 2016). According to a literature review focused on social interaction interventions among students with intellectual disability or autism spectrum disorder and their peers without disabilities by Carter et al. (2010), no educational practice (i.e., student-focused, peer-focused, support-focused) involved teaching vocational skills by peers. Given the federal mandates and current research touting the importance of opportunities to practice vocational skill building during high school, it is alarming that little research has been conducted in this area. Likewise, limited research exists on the use of PMI to improve vocational or social skills in vocational community settings or in work-based learning settings in school. Consequently, a review of the literature examining the impact of PMI on vocational or social skills of YwSD in inclusive vocational or work-based learning settings is warranted.

The purpose of this systematic literature review is to summarize extant research on the effects of PMI where it was used to enhance vocational or social skills for YwSD in integrated vocational or work-based learning settings. While the effects of PMI to enhance academic and social skills in school academic and non-academic settings have been well researched, much less research evaluating the effects of PMI in employment or work-based learning school settings has been conducted. The following research questions guided the review:

1. What are the demographics of the participants included in the studies?

2. What are the dependent variables examined in peer-mediated intervention studies in inclusive employment or work-based learning settings?

3. What experimental methods are used to determine the effects of peer-mediated interventions for youth with severe disabilities in employment or work-based learning settings?

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4. Were the peer-mediated interventions effective for vocational and social skills of youth with severe disabilities in employment or work-based learning settings?

Method

Studies identified for this literature review followed a three-step process. First, an electronic search of articles containing descriptors related to disabilities and interventions in the title and/or abstract was conducted. Second, a hand search through two transition and vocation-focused journals were conducted to identify articles that may have been missed in the electronic search due to different terms used in older issues. Finally, once articles were identified, a thorough examination of each study to be sure it matched all the inclusion criteria was conducted. For this literature review, YwSD included participants diagnosed with autism, intellectual disabilities, multiple disabilities, developmental disabilities, severe emotional disorder, or deaf/blind. Definitions of terms (i.e., disability, settings, independent variables, dependent variables) can be found in Tables 2.1, 2.2, 2.3, and 2.4 respectively.

Search Procedures

Electronic searches were conducted using six databases: Academic Search Complete, Education Research Complete, Education Resources Information Center (ERIC), Primary Search, PsycINFO, and PsycArticles. Search terms for disabilities included: intellectual* disab*, developmental* disab*, mental* retar*, autism, multiple disab*, and disab*. Search terms for interventions included: peer mediat*, peer train*, peer tutor*, peer network*, peer support*, natural support*, and vocation*. These terms were combined in pairs and created additional searches in each database (e.g., natural support* AND intellectual* disab*). In addition, hand searches of the *Journal of Vocational Rehabilitation and Career Development* and *Transition for*

Exceptional Individuals were conducted to check for early articles that may not have used the above terms when evaluating PMI.

Inclusion Criteria

To be included in this literature review, articles needed to: (a) describe research conducted in the United States, (b) be published in a peer-reviewed journal prior to January 2017, (c) include at least one participant with severe disabilities 14 years old or older (e.g., autism spectrum disorders, intellectual disabilities, severe emotional disorder, multiple disabilities, deaf/blind), (d) take place in an inclusive employment or work-based learning setting, (e) implement an independent variable (e.g., peer-mediated intervention) using students without disabilities, and (g) focus on dependent variables that addressed building vocational or social skills.

Coding Procedures

The primary categories recorded for each study were participant demographics and methodological components. Additionally, each primary category had several subcategories created to identify various factors in the studies.

Participant demographics. In each study the following were identified and recorded: (a) the number of participants, (b) their ages, (c) the gender of both participants with and without disabilities, and (d) the study locale. In addition, the primary disability of the participants with severe disabilities was recorded along with any secondary or co-morbid disabilities. For this review, the term *severe disabilities* included participants with autism spectrum disorder, intellectual disability, multiple disability, developmental disability, severe emotional disorder, or deaf/blind. Disability definitions used in this literature review can be found in Table 2.1. Also,

information pertaining to how the peers were recruited and whether the peers had prior experience working with people with severe disabilities was documented.

Table 2.1

Disability Definitions

Term	Definition
Autism	Student or adult with a disability diagnosed with the primary disability of autism. Described in articles as: autism spectrum disorder, high functioning autism, Asperger's.
Intellectual Disability	Student or adult with a disability diagnosed with the primary disability of intellectual disability. Described in articles as: mental retardation, cognitive impairment.
Multiple Disability	Student or adult with a disability diagnosed with the primary disability of multiple disability. Must be legal label of multiple disability and not comorbid.
Developmental Disability	Student or adult with a disability diagnosed with the primary disability of developmental disability.
Severe Emotional Disability	Students or adults with disabilities diagnosed with a primary disability of severe emotional disability. Must include the term "severe."
Deaf/Blind	Students or adults with disabilities diagnosed with a primary disability of deaf/blind disability. Must have both disabilities to be included.

Methodological components. In addition to participant demographics, data were collected on the methodological components of each study. Methodological components included the following categories: (a) research design, (b) data collection methods for dependent

variables, (c) settings, (d) reliability measures, (e) data collection methods for social validity, (f)

independent variables, and (g) dependent variables.

   Settings. Only studies conducted in an inclusive employment, vocational, or work-based

settings were included in this review. The setting could involve a job in the community (e.g.,

restaurant, retirement complex, electronics plant), a vocational program site (e.g., cosmetology

school), or a work-based learning setting in the school (e.g., school store). Table 2.2 describes

how each study location was defined to be included in this review. Studies were excluded if the

peer-mediated interventions were implemented in general education classrooms (e.g., Carter et

al., 2016) or a non-academic school setting such as the cafeteria (e.g., Bambara, Cole, Kunsch,

Tsai, & Ayad, 2016).

Table 2.2

Employment Setting Definitions

Term	Definition
Work-Based Setting	The intervention was implemented and observed in a work-based learning setting within the school to address work or social skills (e.g., cafeteria, coffee shop, book store, etc.). This was the main site of the study.
Employment in the Community	The intervention was implemented and observed at a job in the community outside of the school. This was the main site of the study.
Employment at College or University	The intervention was implemented and observed at a job at a college or university outside of the middle or high school. This was the main site of the study.

Independent variables - peer-mediated interventions. Articles needed to involve youth with and without severe disabilities working together on vocational tasks or social skills. Peer-mediated interventions included: (a) peer tutoring, (b) peer support arrangements, (c) class-wide peer tutoring, (d) peer interaction training, (e) peer network, and (f) natural supports. Definitions for PMI can be found in Table 2.3. Studies were excluded if both students working together had a disability (e.g., Brady, Honsberger, Cadette, & Honsberger, 2016) or if the outcomes of the study focused on perspectives about peer-mediated interventions from students and/or peers instead of addressing vocational or social skills directly (e.g., Bobzien & Judge, 2014).

Table 2.3

Independent Variables: Peer-Mediated Interventions

Term	Definition
Peer Tutoring	Assigning a peer without disabilities to provide academic support to a student with disabilities within tutor-learner pairs; social related support is secondary or incidental. (Carter et al., 2010, p. 69)
Peer Support Arrangement	Arranging one or more peer(s) without disabilities to provide ongoing academic *and* social support to a student with disabilities while receiving ongoing feedback and assistance from adults. (Carter et al., 2010, p. 69)
Class Wide Peer Tutoring	Intra-class, same-age, reciprocal peer tutoring. The participants within one classroom participate and all students can be tutors or tutees (e.g., with or without disabilities). (Greenwood, Arreaga-Meyer, Utley, Gavin, & Terry, 2001)
Peer Interaction Training	Providing direct social skills training to equip peers without disabilities to become effective communication partners, interaction facilitators, and/or social skill instructors. (Carter et al., 2010, p. 68)
Peer Network	Establishing structured social groups around a student with disabilities to promote social and communication outcomes within the classroom and/or across the school day; academic-related support is secondary or incidental. (Carter et al., 2010, p. 68)
Natural Supports	A person (or people) who agree(s) to provide assistance or feedback, or provide companionship to facilitate independent or partially independent performance in employment settings, for or with an individual with severe disabilities, and for whom the provision of such assistance, feedback, contact, or companionship is not their primary responsibility, regardless of whether or not they are compensated. (Storey, 2003, p. 79)

Dependent variables – *vocational or social outcomes*. The participants' vocational and

social skill outcomes were identified from each study and collected for both participants with and

without severe disabilities. The dependent variables included: (a) verbal social initiations with peers, (b) verbal social maintenance of conversations with peers, (c) verbal social initiations with others (i.e., not with the assigned peers), (d) verbal social maintenance of conversations with others, (e) nonverbal interactions, (f) social interactions of participants without disabilities, (g) quality of social interactions, (h) work skills, and (i) other. Definitions of the dependent variable categories can be found in Table 2.4. If the dependent variable identified in the study did not match with these options, it was placed in the "other" column. When a dependent variable was recorded in the "other" column, the description of the dependent variable the authors offered was documented.

Table 2.4

Dependent Variables: Vocational and Social Skills

Term	Definition
Participants with disabilities initiating social interactions with peers (verbal)	The percentage or frequency of initiating social interactions by the participants with disabilities to the participants without disabilities (e.g., peers).
Participants with disabilities maintaining social interactions with peers (verbal)	The percentage or frequency of maintaining social interactions by the participants with disabilities to the participants without disabilities (e.g., peers).
Participants with disabilities initiating social interactions with others (verbal)	The percentage or frequency of initiating social interactions by the participants with disabilities to other people and NOT the peers.
Participants with disabilities maintaining social interactions with others (verbal)	The percentage or frequency of maintaining social interactions by the participants with disabilities to other people and NOT the peers.
Non-verbal social interactions of participants with disabilities	The percentage or frequency of non-verbal social interactions by the participants with disabilities to peers and others during study.
Social interactions of participants without disabilities	The percentage or frequency of engaging in social interactions by the participants WITHOUT disabilities to participants and others during the study.
Quality of Social Interactions	The quality of social interactions between the participants with and without disabilities and others identified and given a rating on scale.
Work Skills	The percentage or frequency of work skills (e.g., correct work skills, followed the task analysis of completing the work task correctly) by participants with and without disabilities.
Other - describe	The dependent variable was not a previous identified category.

Interrater Reliability

Interrater reliability was calculated for identification of participant demographics and methodological components for 33% of the articles ($n = 3$). A doctoral student was trained to identify and record all categories using a coding manual and coding spreadsheet developed by the researcher. During this training, the researcher systematically walked through the specific steps in the coding process with the second data coder while one article was coded together. Differences in codes between the researcher and second coder were discussed and came to consensus. Interrater reliability for each article was calculated by dividing the number of agreements by the total number coded and then multiplied by 100. Overall reliability averaged 90.9% across three articles ranging between 85.9 to 96.7%.

Results

A total of nine studies were identified prior to January 2017 that focused on the impact of peer-mediated interventions on vocational or social skills for youth with and without severe disabilities in inclusive employment or work-based learning settings. Eight of the nine articles were written prior to 2000. Articles were published in six different journals (*Journal of the Association for Persons with Severe Handicaps [JASH], Journal of Vocational Rehabilitation, Mental Retardation, Career Development for Exceptional Individuals, Education and Training in Mental Retardation,* and *Journal of Positive Behavior Interventions*).

Demographic Information

Participant demographic information is reported in Table 2.5. The studies in this review included 93 participants with severe disabilities and 54 participants without disabilities. Participants without disabilities included general education students (2.7%) and adults without disabilities including supervisors and coworkers (34%). Just over 34% of the participants with a

severe disability were male with 15% female, however, more than half of the participants' gender was not identified. The number of male peers aligned closely with males with severe disabilities (35%), yet, 32% of the peers included in the studies were female and only a third of peers' gender was not reported. Yet, whether peers were matched based on gender was not reported. Less than half (44%) of participants with a severe disability were between the ages of 14 – 21 years' old while only 20% of peers were the same age. The most prevalent primary disabilities for participants were developmental disabilities (21.5%) and intellectual disabilities (20.4%). In these nine studies, there were no participants identified with multiple disabilities, however, diagnoses for 26 participants were not clearly identified. There were 24 participants included in the analysis that had diagnoses other than severe disabilities in the nine studies (e.g., learning disability, deaf only). Recruitment of peer supports occurred in a variety of ways including by a teacher, employer, or researcher ($n = 4$), volunteering to participate ($n = 1$), or unreported ($n = 3$). The study conducted by Lignugaris-Kraft, Salzburg, Rule, and Stowitschek (1988) specifically recruited peers with previous experience working with people with disabilities. Breen, Haring, Pitts-Conway, and Gaylord-Ross (1985) selected peers without experience and the remaining studies were unclear about the level of experience working with people with disabilities.

Table 2.5

Participant Demographic Information

Demographic Variable	n	%
Participants		
Special Education Students	36	24.5
General Education Students	4	2.7
Adults with a Severe Disability	57	38.8
Adults without a Disability	50	34
Primary Disability		
Autism Spectrum Disorder	4	4.3
Intellectual Disability	19	20.4
Multiple Disability	0	0
Developmental Disability	20	21.5
Other	24	25.8
Not Clear	26	28
Ages of Participants with a Severe Disability		
14 – 18 years' old	20	21.5
19 – 21 years' old	21	22.6
22+ years' old	32	34.4
Not Clear	20	21.5
Ages of Participants without a Disability		
14 – 18 years' old	5	9.3
19 – 21 years' old	6	11.1
22+ years' old	28	51.9
Not Clear	15	27.8
Gender of Participants with a Severe Disability		
Male	32	34.4
Female	14	15.1
Not Identified	47	50.5
Gender of Participants without a Severe Disability		
Male	19	35.2
Female	17	31.5
Not Identified	18	33.3
Selection of Participants without a Disability*		
Teacher Recruited	1	10
Employer Recruited	3	30
Volunteer	1	10
Other	2	20
Not Clear	3	30
Prior Experience of Participants without a Disability		
Yes	1	11.1
No	1	11.1
Not Clear	7	77.8

*Notes: * = could be in more than one category*

Methodological Components

In this literature review, research design, settings, data collection methods for the dependent variable, reliability measures, data collection methods for social validity, independent variables, and dependent variables were identified and recorded for each of the nine studies. Table 2.6 provides the methodological components from the studies.

Table 2.6

Methodological Components of Integrated Employment Studies

Component	n	%
Experimental Design		
Group Research	2	22.2
Single Case Research	4	44.4
Descriptive – Quantitative	3	33.3
Settings		
Work-Based Setting	1	11.1
Job in the Community	8	88.9
Data Collection Methods		
Live Observations	7	77.8
Other	2	22.2
Reliability Measures		
Interobserver Agreement Reported	8	80
Procedural Fidelity Reported	2	20
Social Validity Measures		
Survey	4	44.4
None Collected	5	55.6
Independent Variable: Peer-Mediated Intervention*		
Peer Interaction Training	1	9.1
Natural Supports	8	72.7
Teaching Skills to Participants with Disabilities	2	18.2
Dependent Variables*		
PWD Verbal Social Initiations with Peers**	4	17.4
PWD Verbal Social Maintaining with Peers	3	13
PWD Verbal Social Initiations with Others	3	13
PWD Verbal Social Maintaining with Others	2	8.7
Social Interactions of Peers	1	4.3
Work Skills	2	8.7
Other	8	34.8

*Notes: * = could have been more than one dependent variable collected;*
**PWD = persons with disabilities

Research Design. The primary experimental design utilized in the included studies was

single case research design (*n* = 4); three multiple baseline designs (MBD) and one A-B1-B2-

B3-C case study design. Breen et al., (1985), Storey and Garff (1999), and Westerlund,

Granucci, Gamache, and Clark (2006) conducted MBD studies examining the effects of PMI on

vocational skills or social interactions of YwSD only. Storey and Garff (1997) used an A-B1-B2-B3-C case study design to assess the effectiveness of coworkers without disabilities teaching job tasks and encouraging social interactions with YwSD. Two studies used group designs (Curl & Chisholm, 1999; Lee, Storey, Anderson, Goetz, & Zivolich, 1997). Curl and Chisholm (1993) did not include a control group in their study. The authors surveyed YwSD who had previously participated in a PMI while in an employment setting and reported that 62.9% of the YwSD had employment after completing the PMI. Lee et al. (1997) compared three different groups of people with and without disabilities with three different job-training methods (e.g., job coach, managers, coworker). Furthermore, three studies utilized descriptive – quantitative designs to explicitly observe the social interactions between the coworkers with and without disabilities without direct instruction (Lignugaris/Kraft et al., 1988; Storey & Knutson, 1989; Storey, Rhodes, Sandow, Loewinger, & Petherbridge, 1991).

   Setting locations. All but one of the studies took place in community work sites (e.g., restaurants, government buildings, electronics plant). The study conducted by Westerlund et al. (2006) took place in a cosmetology training program. In the restaurant settings, the PMI was implemented in break rooms and throughout the restaurant completing specific job tasks (Breen et al., 1985; Lee et al., 1997; Storey & Garff, 1997). In the other community settings, individuals without disabilities worked alongside YwSD and implemented PMI in a community store (Lignugaris/Kraft et al., 1988), a government building (Storey & Garff, 1999), and an electronics plant (Storey et al., 1991). The remaining articles (Curl & Chisholm, 1993; Storey & Knutson, 1989) observed the effects of PMI across various work sites for each study including restaurants, bakeries, nursing homes, university student unions, and department stores.

Data collection methods, reliability, fidelity, and social validity. Seven of the nine studies collected data using live observations and recording behaviors on data collection sheets. The two remaining studies that did not collect live data, collected data through questionnaires and conversations with the participants with disabilities (Curl & Chisholm, 1993) or audio-taped conversations between the YwSD and their peers while on the job and later transcribed the recordings (Lignugaris/Kraft et al., 1988). In the Lignugaris/Kraft et al. (1988) study, the authors tallied the number of social interactions, who participated in the social interactions, and the type of interaction (e.g., commands, directions, greetings, offers of assistance).

While the majority of studies (80%) included information for inter-observer agreement on observing dependent variables, only two studies (Storey & Garff, 1997; 1999) reported taking procedural fidelity. Unfortunately, no data were reported in the Storey and Garff articles for procedural fidelity. Furthermore, no studies reported information regarding treatment fidelity. Without procedural and treatment fidelity data, it cannot be concluded whether the participants understood and implemented the interventions reliably during each study.

Surveys on the social validity of the intervention were collected in four of the studies. However, only employers, parents, rehabilitation personnel, or job coaches participated. Participants with severe disabilities were not involved in providing their perceptions on the intervention or skills learned. The absence of participants' perceptions is unfortunate since the participants with severe disabilities could provide valuable information on different aspects of the intervention and how it is affecting them directly.

Independent variables. Peer-mediated interventions were defined as educational practices addressing academic, social, or work skills for people with severe disabilities working with people without disabilities (Schaefer, et al., 2016). There were only two types of peer-

mediated interventions evaluated in the studies included in this review, natural supports and peer

interaction training. Close to three quarters of the studies (72.7%) examined the impact of

natural supports on vocational or social skills of individuals with severe disabilities. According

to Storey (2003), natural supports involve:

> A person (or people) who agree(s) to provide assistance or feedback, or provide
> companionship to facilitate independent or partially independent performance in
> employment settings, for or with an individual with severe disabilities, and for whom the
> provision of such assistance, feedback, contact, or companionship is not their primary
> responsibility, regardless of whether or not they are compensated. (p. 79)

For instance, a natural support would be a coworker, supervisor, customer at a restaurant,

congregation member at a place of worship, or fellow trainee. Four studies that used natural

supports (Curt & Chisholm, 1993; Storey & Garff, 1997, 1999; Westerlund et al., 2006) provided

training to coworkers and supervisors on socializing or teaching vocational skills to individuals

with severe disabilities while in the work place or a school-based vocational training program.

Three studies (Lignugaris/Kraft et al., 1988; Storey & Knutson, 1989; Storey et al., 1991)

observed the positive social interactions between individuals with severe disabilities and their

coworkers in the employment setting. The authors of these studies identified integrated

employment settings that were implementing PMI in the work place to observe the effects of

PMI on the work engagement or social interactions of YwSD and their coworkers. Findings

revealed that coworkers without disabilities did attempt to initiate and engage in social

conversations with YwSD, however, YwSD did not necessarily maintain those conversations.

Additionally, the authors observed that YwSD preferred talking with other YwSD or

employment specialists (e.g., job coach, school or agency supervisor). Lee et al. (1997)

evaluated the social interaction patterns of individuals with severe disabilities in the work place

by comparing two intervention models, the job coach model and the peer mentor model.

Overall, studies using natural supports as the PMI demonstrated positive improvements in vocational or social skills for YwSD.

According to Carter et al., (2010) the definition of peer interaction training is: "providing direct social skills training to equip peers without disabilities to become effective communication partners, interaction facilitators, and/or social skill instructors," (p. 68). One study (Breen et al., 1985) implemented peer interaction training to evaluate the social skills of youth with severe disabilities. The authors showed that youth with severe disabilities could apply the social skills they learned into an integrated environment (i.e., breakroom) while working on the job. In addition to training or supporting peers without disabilities in the study, two studies (Breen et al., 1985; Storey & Garff, 1997) evaluated the effectiveness of the peers teaching the YwSD different social interaction skills. In summary, the PMI literature conducted in integrated employment settings appears to focus on the use of natural supports with minimal peer training of how to work and socialize with YwSD in the work place.

Discussion

The purpose of this literature review was to examine the impact of peer-mediated interventions on vocational or social skills in integrated employment settings for youth with severe disabilities. While few in number, the studies evaluating the effects of PMI on the vocational or social skills of YwSD in inclusive employment settings revealed positive outcomes. Findings from these studies showed that YwSD improved their ability to complete vocational tasks or increased their engagement in social interactions with coworkers. Also, coworkers without disabilities initiated more social interactions with the YwSD in the work setting after PMI was implemented. Thus, PMI may be an effective intervention to improve vocational or social skills for YwSD within integrated work-based or employment settings.

The nine articles successfully implemented PMI in inclusive employment settings in the community. This finding substantiates the notion that PMI does not need to be restricted to school settings (e.g., academic classroom, non-academic classrooms). All of the studies took place in integrated employment sites (e.g., restaurants, electronics factory, local businesses, cosmetology vocational training program) and demonstrated improved skills for YwSD. Youth with severe disabilities learned and practiced specific vocational or social skills in authentic employment settings with coworkers without disabilities. Furthermore, coworkers were trained to encourage YwSD to build skills completing work tasks or engage appropriately with colleagues. This finding provides evidence that the implementation of PMI in other integrated settings (e.g., work sites) can impact the vocational and social skills of YwSD. Overall, the studies demonstrated how beneficial PMI can be on learning functional skills YwSD may need in post-school employment opportunities.

This literature review supports current research demonstrating the positive impact of participation for YwSD in vocational education and work experiences while in high school with individuals without disabilities (e.g., Test et al., 2009). One main finding was that eight of the nine studies that implemented PMI in community employment settings were with coworkers who were not the same age as the YwSD. The coworkers' ages in the studies ranged between 18 to 61 years old. This result supports the idea that regardless of age, YwSD still learned the skills necessary for employment from the coworkers without disabilities and suggests that the participants could work together on job tasks and socialize. However, having peers that are not the same age as the YwSD could potentially result in more of a mentor-mentee or teacher-student relationship, rather than authentic friendships between the coworkers. Further

information is needed to determine how the relationships between the YwSD and their coworkers were affected when PMI was introduced.

Another major finding from this review was the limited number of studies *(n = 2)* that addressed the learning of vocational skills in inclusive employment environments for YwSD. Curl and Chisholm (1993) trained coworkers without disabilities to use the instruction/model/observe/coach sequence when teaching YwSD the work tasks associated with the job. Westerlund and colleagues (2006) evaluated the impact of PMI on job tasks and work-related verbal behaviors when coworkers without disabilities worked with YwSD in a cosmetology vocational program. Results from both studies demonstrated improvements in work skills for the YwSD and emphasized that coworkers could effectively implement PMI. The majority of studies evaluated the social interactions and maintenance of social conversations for YwSD when interacting with coworkers without disabilities. Social skills are important for YwSD to use efficiently when working. However, if YwSD do not participate in basic vocational skills training, these youths may not succeed in post-school employment. Therefore, attention to how PMI can positively influence vocational and social skills in an integrated employment setting is warranted to improve post-school employment for YwSD.

Implications for Research

This literature review highlights the paucity of research that evaluates the effectiveness of peer-mediated interventions on vocational and social skills for students with severe disabilities in integrated employment settings. There are several recommendations for future research arising from this review regarding PMI in employment settings.

First, the effectiveness of PMI for YwSD remains inconclusive in inclusive work-based learning settings within the high school. Research supports teaching vocational skills in high

school through vocational education or occupational preparation programs to enhance post-school outcomes (Test et al., 2009), however, evidence for using PMI as the intervention in these settings addressing vocational skills has rarely been conducted. Furthermore, PMI have resulted in improvements in academic and social skills for YwSD in inclusive academic and non-academic settings in high school (e.g., Carter, Cushing, Clark, & Kennedy, 2005; Hochman et al., 2015) and in inclusive employment settings outside of school as reported by this literature review. However, PMI has not yet demonstrated to be effective in work-based learning settings in high school due to the lack of studies in these settings. Therefore, future research needs to examine the effects of PMI while youth with and peers without severe disabilities are in vocational education, occupational preparation programs, or work-based learning settings while still in high school. Additional single-case research design studies should be conducted exploring the effects of PMI on various vocational and social skills in different contexts. Comparison studies assessing the effects of PMI on the vocational and social skills in different contexts can be conducted investigating which factors (e.g., environment, peer, skills) could have more of an impact or influence on students' transition outcomes.

In general, individuals without disabilities may learn specific work skills incidentally while on the job with coworkers. Initial guidelines and supports may come from a supervisor, but day-to-day activities are generally performed alongside other colleagues. Thus, implementing PMI to prepare YwSD to work collaboratively with coworkers in work tasks through inclusive work-based or employment settings while in high school could prepare them for the job skills that are necessary for future employment. Furthermore, when YwSD are equipped with vocational and social skills, employers may be more apt to hire them (Agran et al., 2016). Therefore, research on the effectiveness of implementing PMI in inclusive work-based or

vocational settings while in high school may better prepare YwSD with skills required for post-school employment.

In addition to understanding the effects of PMI on the vocational and social skills of YwSD in integrated employment settings, conducting research focused on how PMI influences the employment outcomes for the peers without disabilities is also necessary. Out of the nine studies identified in this literature review, only one study (Lignugaris/Kraft et al., 1988) took data on the number of social interactions of the peers involved. Furthermore, in a literature review conducted by Schaefer et al. (2016) examining the outcomes of PMI on the peers without disabilities, the authors reported that studies demonstrated an increase in communication behaviors and social interactions for the peers involved in the intervention, but there was minimal information pertaining to the quality of those interactions and the peers' perspectives and attitudes towards YwSD or the intervention itself (Schaefer et al., 2016). Therefore, these findings suggest that future research should include measuring the effects of PMI on the vocational and social skills of the peers without disabilities, their perceptions about working with YwSD, and how to possibly improve the PMI from their viewpoint utilizing designs such as single-case, group, and qualitative designs.

Implications for Practice

If youth with severe disabilities are to secure and maintain post-school employment alongside peers without disabilities, then practicing vocational and social skills in segregated settings is unacceptable. The literature identified in this review, while limited, extends the current body of knowledge and highlights the effectiveness of PMI in inclusive employment settings for YwSD. Using this knowledge of effective contexts for PMI, school personnel can utilize PMI as an alternative strategy to engage YwSD and peers without disabilities when

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teaching skills in inclusive settings for post-school success. In addition, professional personal development trainings can be developed by school personnel to teach other teachers and staff members how to implement PMI correctly to impact skills. Therefore, transition and vocational education programs could include community-based vocational trainings for youth with and without severe disabilities to build skills while accessing authentic work settings in the community. This opportunity to work together in an inclusive environment along with teacher support and guidance, may improve the vocational and social skills for all participants. It may also provide YwSD a chance to practice the generalization of the learned skills in different work settings with different peers. Therefore, the ability to generalize vocational and social skills in various job sites with a variety of coworkers in the community could provide YwSD a way to obtain and maintain future employment.

Also, this literature review offers school personnel an evidence-based intervention that is relatively simple and flexible to use when supporting a variety of skills. As some school policies inhibit youth access to community work environments, PMI may be modified and implemented within the school setting. Peer-mediated interventions can be applied to various work-based settings within the school building (e.g., library, office, cafeteria) to build vocational and social skills for YwSD with same-aged peers with confidence the intervention is effective. Additionally, both youth with and without severe disabilities will have the opportunity to work together and form friendships in authentic settings with an adult guiding and supporting the activity. Thus, by using peers to assist YwSD in learning vocational and social skills in authentic work-based environments, vocational skills and true friendships may emerge that could improve post-school employment outcomes for all involved.

Conclusion

This literature review analyzes the current body of knowledge focused on peer-mediated interventions in integrated employment settings for youth with severe disabilities. School personnel (e.g., special educators, vocational coordinators, transition specialists) have reported the need for effective interventions to address vocational and social skills for YwSD to embed into the general education curriculum in high school for pre-employment preparation (Bobroff & Sax, 2010; Certo et al., 2003). Peer-mediated interventions have demonstrated success for YwSD to learn and practice vocational and social skills in integrated employment settings (Storey & Garff, 1999; Westerlund et al., 2006). Therefore, based on this literature review's results, future studies should be conducted to examine the effects of PMI in integrated employment or work-based learning settings addressing work and social skills for youth with and coworkers without severe disabilities. Furthermore, school personnel may apply PMI to assist in helping YwSD build the skills necessary for successful employment outcomes. Providing youth with severe disabilities opportunities to engage in authentic work experiences with natural supports could potentially enhance their quality of life and a successful transition to adulthood.

III. RESEARCH PAPER

Examining the Effect of Peer Supports for Students with Severe Disabilities in Inclusive Work-Based High School Settings

Since the 1980s, people with disabilities have advocated for a better quality of life post-high school (Schalock, 2000). An improved quality of life includes access to vocational education and integrated employment opportunities to learn skills required for the work force while in high school. With the introduction of transition-focused education by the Individuals with Disabilities Education Act (IDEA) in 1990, school personnel have concentrated on improving transition outcomes (e.g., employment, education, independent living) for students with disabilities, including those with significant support needs, to improve their quality of life post-school. There has also been a push for research to develop quality employment programs and interventions for youth with disabilities (Disability Employment Initiative, 2016). However, compared to individuals without disabilities, adults with disabilities continue to be unemployed at higher rates (Wagner, Newman, Cameto, Levine, & Garza, 2006). In January 2017, the US Department of Labor reported the unemployment rate of people with disabilities (ages 20-24) was twice as high as people without disabilities (US Department of Labor, 2017). Given this information, there appears to be a disconnect between the desired outcome (e.g., employment post-school) and the reality of post-school outcomes (e.g., continued high unemployment rates) for people with disabilities.

Focusing on the reasons for the disconnect between desired outcomes and reality, Test and colleagues (2009) conducted a comprehensive literature review to examine the relationship between secondary in-school factors and post-school outcomes in employment, education, and independent living for students with disabilities. The authors identified 16 transition-related in-

school predictors that positively impacted post-school outcomes for students with disabilities. While all 16 in-school predictors provided potential support for enhanced employment outcomes, four predictors (inclusion in general education, paid work experiences, vocational education, work study) were identified as providing moderate improvements in employment outcomes post high school. In addition, studies have shown that paid work experiences in an inclusive community setting at the high school level offers students with severe disabilities (SwSD) the chance to learn and practice work and social interaction skills (Benz, Yovanoff, & Doren, 1997; Kaehne & Allan, 2011). Furthermore, access to community and employment settings with vocational or life-skills training afford SwSD the possibility of better pay, full-time work, and a higher quality of life (Government Accountability Office, 2012; Turnbull, Turnbull, Wehmeyer, & Park, 2003). Research has also indicated that when SwSD participate in vocational education and work study while in high school, they demonstrate higher levels of engagement in full-time post-school employment (Baer et al., 2003). Unfortunately, there is limited research on effective interventions in inclusive contexts for SwSD to learn vocational and social skills while still in high school. Due to the lack of research, school personnel are not armed with evidence-based strategies that enable them to teach these skills within the high school curriculum. The consequence of this gap in research is that SwSD may not be equipped for post-school employment with the skills necessary to ensure success. It is arguable that providing SwSD opportunities to engage in vocational education with inclusive paid work and work study experiences is critical to improve the prospects of post-school employment (Carter, Sisco, Melekoglu, & Kurkowski, 2007; Guy, Sitlington, Larsen, & Frank, 2009).

Peer Support Intervention

To help access and provide meaningful participation in employment settings, peer

support may be a viable intervention strategy. Peer support is an evidence-based intervention

that may be effective for addressing work and social skills in work-based learning settings.

Current research reveals that peer support interventions improve academic and social skills in

inclusive general education classrooms for a wide range of students with various disabilities and

ages by providing training and support to both the students with and without severe disabilities

(Carter & Hughes, 2005; Carter, Sisco, Chung, & Stanton-Chapman, 2010). The intervention is

facilitated by special educators or paraprofessionals and has students without disabilities provide

individually tailored social language and academic support to SwSD in general education

settings (Carter, Cushing, & Kennedy, 2008; Carter & Kennedy, 2006). Carter and Kennedy

(2006) described peer supports as consisting of four components: (a) student selection (i.e.,

selecting peers to work with students with disabilities), (b) peer training (i.e., information and

basic strategies tailored specifically to use when working with students with disabilities taught

explicitly to the peers), (c) peer-delivered support (i.e., peers provide assistance to the students

with disabilities under the guidance of a paraprofessional or special education teacher), and (d)

adult monitoring (i.e., feedback and monitoring of the peers by school personnel). Peer support

interventions provide both students with and without disabilities social communication strategies

when working collaboratively in inclusive learning environments to enhance academic skills and

peer interactions (Carter & Hughes, 2005).

Peer support interventions have demonstrated improvements in social and academic

outcomes for both students with and without severe disabilities in general education classrooms

(Carter et al., 2007; Cushing & Kennedy, 1997), employment preparation skills in community-

based environments (Bobroff & Sax, 2010; White & Weiner, 2004), and social skills in

community-based work settings (Kaehne & Beyer, 2013; Storey & Garff, 1999). Peer support studies have focused on the improvement of academics (e.g., knowledge, engagement), social interaction skills, and access to general education classrooms. However, limited research has been conducted on the influence peer supports may have on the vocational or social skills of SwSD in employment settings. Bobroff and Sax (2010) conducted a study evaluating the effects of peer tutors (i.e., dyads of students with disabilities) to teach social interaction skills used in a job interview. Results showed tutees and tutors made considerable gains in interview interactions as demonstrated by a pre-post mock interview with familiar and unfamiliar people. Kaehne and Beyer (2013) interviewed family members and employers on their perceptions of a peer support component embedded within a larger program aimed at providing employment opportunities through transition planning for youth with intellectual disabilities. Families reported that peer supports assisted in building the social skills of the students with intellectual disabilities; however, consistent improvement of vocational skills was not reported. Likewise, Storey and Garff (1999) determined that when peer supports were implemented to teach job and work-related social skills with dyads of young adults with and without disabilities in an integrated employment setting, it resulted in social skill improvements. Unfortunately, data on vocational skills related to the job were not collected. White and Weiner (2004) conducted a study identifying in-school variables to predict integrated employment for SwSD. Findings revealed that integrated settings with same-age peers and community-based on-the-job training correlated significantly with successful post-school employment for SwSD. There is emerging evidence that the use of peers without disabilities can positively influence social skills of SwSD in the work place (Kaehne & Beyer, 2013) and provide a natural means of supporting youth with disabilities in authentic employment settings (Storey & Garff, 1999).

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Although studies have demonstrated improvements in vocational or social skills for SwSD while using peer supports, no study has targeted growth in *both* work task independence and social interactions in an integrated work-based learning setting. Research suggests the most effective environment to teach work task independence and social interactions for both students with and without severe disabilities is in a work-based learning setting (Agran, Hughes, Thoma, & Scott, 2016; Guy et al., 2009). Moreover, work experiences during high school enable the SwSD to learn job expectations, social interactions, and life skills in a familiar space (Kaehne & Allan, 2011). Establishing a work-based learning program in the school can be a strong link between school and post-school competitive employment (Gemici & Rojewski, 2010; Kittelman, Bromley, & Mazzotti, 2016). To date, no research has directly assessed the impact of peer supports in work-based learning settings to improve work task independence and social interactions for SwSD.

Logic Model

In this intervention, the potential effects of the peer support intervention are presented using a logic model. A logic model is designed to show how an intervention can change the focused behavior of a participant. The purpose of the logic model created for this study is to demonstrate how the *inputs* (i.e., work skills, social skills) will change when a focused *strategy* (i.e., training of same aged peers in peer support strategies) with specific *outputs* (i.e., peer training sessions in the work-based activity) is implemented. When using logic models, both *proximal outcomes* and *distal outcomes* are measured to determine effectiveness of the intervention on the original inputs. In this study, the *proximal outcomes* are the peers implementing the strategies according to the training (i.e., treatment fidelity) and the *distal outcomes* are the changes in behavior due to the intervention (i.e., increase in work task

independence, increase and quality improvement in social interactions).   Figure 3.1 provides a

visual representation of the logic model with the predicted outcomes of peer supports on work

task independence and social interactions for both students with and without severe disabilities.

INPUT	STRATEGIES	OUTPUTS	PROXIMAL OUTCOMES	DISTAL OUTCOMES
• Work-based skills • Social Skills	• Research-based peer support strategies	• Peer training sessions in the work-based setting	• Peers implement strategies according to training model	• Increased work skill independence • Increased and improved social interaction skills
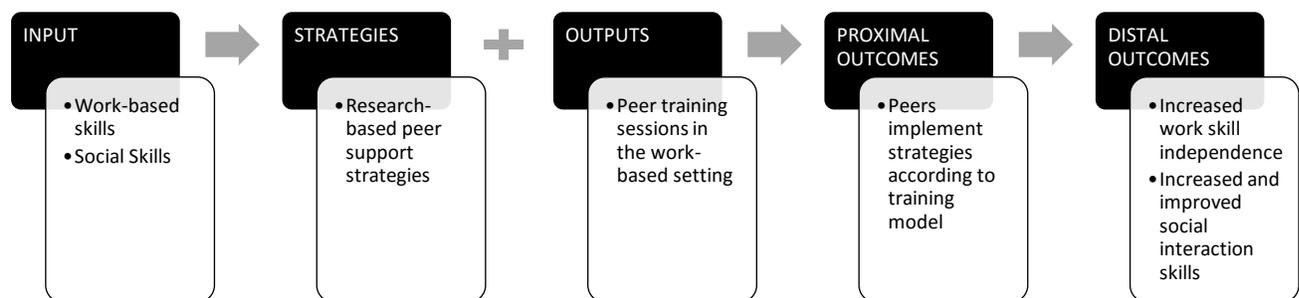
Figure 3.1: Logic model for peer support interventions in work-based learning settings

Purpose of Proposed Study and Research Questions

It is clear from the lack of research in the areas of inclusive employment settings, work

skills, and social interaction skills that more research is needed to examine the relation among

these factors. The purpose of this study was to evaluate how peer supports influence the

independent engagement in work tasks and social interactions of students with and without

severe disabilities in an inclusive, work-based learning setting. The research questions posed in

this study are:

1. Does the implementation of peer supports demonstrate a functional relation in the

   percentage of independent work tasks for students with severe disabilities in an authentic

   high school work-based learning activity?

2. Does the implementation of peer supports demonstrate a functional relation in the percentage and quality of social interactions between students with and without severe disabilities in an authentic high school work-based learning activity?

Method

Participants and Setting

Five students with severe disabilities and five students without disabilities participated in this study. After receiving institutional review board and district approval, recruitment of high school students with and without disabilities began with the assistance of the high school's special education teacher, Ms. Robertson, to identify the potential pool of participants. Ms. Robertson completed a checklist containing inclusion criteria for each potential participant before recruiting them to be part of the study. Students with severe disabilities needed to be: (a) between the ages of 14-18 years old, (b) receiving special education services under the educational diagnoses of autism spectrum disorders or intellectual disability, (c) able to perform gross and fine motor tasks with prompting, (d) able to understand and follow 1-step directions with prompting, and (e) able to independently communicate his/her wants and needs. Peers without disabilities recruited to be part of the study had to meet the following criteria: (a) be between the ages of 14-18 years old, (b) did not have a documented educational disability, (c) had a common class period with the SwSD, and (d) be willing to work with a student with severe disabilities in an inclusive work-based activity. Pairings of students were set up by the special educator based on the skills of the SwSD and availability in the school schedule. Pseudonyms were used for all participants in this study.

Kim and Jenny. Kim was a 16-year old female in the tenth grade and transferred to this high school at the beginning of the calendar year from a segregated high school for youth with

severe disabilities within the district. She received special education services under the primary

diagnosis of intellectual disability and a secondary diagnosis of autism spectrum disorder. Kim

spoke in 1-3 word utterances, struggled with communicating and interacting with her peers,

required steady prompts to follow through with directions, and did not use her iPad to

communicate consistently at school. She engaged in echolalia when processing information and

used it as a form of verbal self-stimulation that prevented her from communicating effectively

with her peers. She also used verbal scripts (e.g., greeting the teacher every time she came into

the room in the morning) to initiate conversation with others instead of spontaneous interactions.

The results of the Test of Academic Performance (TAP) was used to determine Kim's reading

and math levels. Kim achieved a grade level score of 1.9 in reading recognition, a 1.1 in reading

comprehension, and a K.1 in math. Goals on her individual education program (IEP) included

increasing her expressive responses with peers, using total communication methods to increase

communication, increasing consistent question answering, and improving her ability to maintain

conversations with peers. Ms. Robertson wanted her to integrate more with her peers without

disabilities in a variety of school environments. For this study, Kim was paired with Jenny, who

was a 17-year old female in the 12th grade.

Beth and Melissa. Beth was an 18-year old female in the twelfth grade. This was her

final year in high school and she was transferring to a local transition program in the fall. Beth

had Down syndrome with a primary diagnosis of intellectual disability. She had received her

academic instruction in the segregated special education classroom since her freshman year.

Beth had few opportunities to socialize with her peers without disabilities. She communicated

verbally but had a speech impairment that made it difficult for others to understand her. At the

time of the study, Beth did not have an alternative and augmentative communication (AAC)

device to use to improve the clarity of her communication. According to the most recent Kaufman Test of Educational Achievement (KTEA-III), Beth attained a standardized score of 40 (very low) in reading and 46 (very low) in math and received a full-scale IQ score of 67 on the Stanford-Binet. Beth could focus on work-based activities and follow 1-step directions, however, she had difficulty asking for assistance and collaborating with her peers. Moreover, Beth would socially engage with her peers but could misinterpret communicative messages and intent, hindering her ability to maintain friendships. Ms. Robertson wanted Beth to improve her ability to ask for help, become more independent during work tasks, and increase social interactions with peers. Beth was paired with Melissa for the duration of the study. Melissa was a 17-year old female in the 12th grade.

Nate and Rose. Nate was a 15-year old male in the ninth grade. Nate received special education services under the primary diagnosis of intellectual disability and a secondary diagnosis of autism spectrum disorder. Before coming to high school, Nate was integrated in the general education classroom for the majority of his school day. Recently, he was transferred to the more restricted environment due to issues related to communication and language. Nate expressed a desire to interact with his peers without disabilities but had difficulty initiating conversations and structuring appropriate questions. He communicated verbally and could follow multi-step directions during activities. Nate achieved a grade level score of 2.6 in reading recognition, a 2.1 in reading comprehension, and a 3.0 in math on the Peabody Individual Achievement Test (PIAT). He attained a nonverbal standardized score of 65, a verbal standardized score of 53, and full scale standardized IQ score of 57 on the Stanford-Binet. Individual education goals for Nate targeted maintaining eye contact with communicative partners and to participate cooperatively with small groups of students. Ms. Robertson wanted

Nate to be more independent during work-based activities, depend less on verbal scripts to interact, and work on being more spontaneous when communicating with his peers. He was paired with Rose who was an 18-year old female in the twelfth grade.

Jeanette and Julia. Jeanette was a 15-year old freshman with a primary diagnosis of intellectual disability. She could communicate verbally and required constant prompting to continue with academic or work tasks. Jeanette demonstrated visual-spatial issues and did not wear her glasses at school. Based on the Wechsler Intelligence Scale for Children (WISC-IV), Jeanette's full scale IQ score was 40. Jeanette scored in the "emergent" range for letter and number recognition on the Kaufman Survey of Early Academic and Language Skills (K-SEALS). Individual education goals for Jeanette focused on sustaining attention to academic and functional activities, decrease verbal outbursts during class, and complete tasks with minimal prompts from classroom staff. Ms. Robertson desired Jeanette to work on foundational job skills (e.g., following directions, vocational social skills) and social interaction skills (e.g., staying on topic, initiating conversation, answering questions) during her high school career. Jeanette was paired with Julia who was an 18-year old female in her senior year of high school.

Clark and Katie. Clark was an 18-year old male in the twelfth grade. He had Down syndrome with a primary diagnosis of intellectual disability. Clark received his academic instruction in the segregated special education classroom with few chances to attend general education classes. On the KTEA – II, Clark attained a standardized score of 58 (lower extreme, 0.3) in reading and 63 (lower extreme, 1st) in math. Based on the WISC-IV, Clark's full-scale IQ score was 45. A primary goal for Clark was to increase the length of his utterances when socially interacting with non-familiar communicative partners. He enjoyed socializing but had a difficult time staying on task when working with his peers and completing work independently.

He also tended to be "bossy" in groups of students' which resulted in difficulties working collaboratively. Ms. Robertson wanted Clark to participate in more work-related tasks in school to address independence and appropriate socializations in work-based activities. Clark and Katie, a 17-year old female in the 12th grade, were paired to work in the work-based activity.

Setting. One suburban school district serving over 3400 students was selected to participate. A special educator from the district had reached out to the researcher to discuss creating a more inclusive school environment for her SwSD. Thus, the participants in this study were a sample of convenience. This district did not contain a peer support program, had inadequate access to pre-employment activities, and had limited inclusion time for academics or electives for the SwSD. The high school demographics were similar to the suburban community with 71% African-American, 24% Hispanic, 2% White, and 2% multiracial, with 75% low – income students, and 13% students with disabilities (At-A-Glance Report Card, 2015).

Work-based learning settings were defined as, "…a collection of educational program alternatives that use the workplace and students' work-based experiences as a basis for academic and vocational instruction," (Gemici & Rojewski, 2010, p. 242). For this study, the special educator and researcher identified one work-based activity within the high school where the dyads could work together at separate times during the day. The work-based activity involved collecting the recycling from selected classrooms and offices and taking it to the central recycling location. The work tasks needed to complete the work-based activity were outlined by the special educator.

Research Design

A multiple-baseline design across participants with generalization probes (Gast & Ledford, 2014) was used to evaluate the functional relation of peer supports on independent

engagement in work tasks and social interactions for students with and without severe disabilities in an inclusive work-based activity. This design was selected because it permitted the researcher to study multiple students with similar behaviors and evaluate the impact of the peer supports across subjects (Gast & Ledford, 2014). The experiment included two phases, baseline and intervention (i.e., implementation of peer support strategies in the work-based learning setting). Generalization probes in a novel setting (e.g., copying) were randomly implemented across phases with all dyads to examine the generalizability of skills and outcomes. The peer supports training was staggered across participants during the experiment with the next dyad of students beginning the intervention phase when the previous dyad demonstrated a steady level change.

Procedures

Baseline. During baseline, the dyads worked together on the recycling activity. The dyads were instructed to complete the job by visiting a list of classrooms and collecting the recycling in a large blue cart during the session without formal instruction on the tasks. Based on recommendations by Horner et al. (2005), movement to the intervention phase by a dyad did not ensue until the data pattern of baseline for independent engagement in work tasks demonstrated adequate stability (e.g., a minimal of five consecutive data points).

Independent variable. When the baseline for independent engagement in work tasks was stable for a randomly chosen dyad, the researcher began training the peer on the peer support strategies. The independent variable involved teaching and demonstrating for the peer how to model, prompt, and support independent work tasks and social interactions with their partner while working. In the initial training session, the peer and researcher discussed various research-based strategies provided in a worksheet to use when working with the SwSD to encourage independent engagement in work tasks and social interactions on the job.

Additionally, any ideas proposed by the peer (e.g., visual schedule, modeling the activity) were discussed together and determined how to implement these ideas into the activity. Subsequently, two training sessions were conducted with the dyad and the researcher while working on the recycling activity. The researcher modeled the various strategies identified on the worksheet while working on the recycling activity with the dyad. Time was provided for the peer to practice using the strategies as well as to ask questions of the researcher during these sessions.

Intervention phase. The intervention phase was initiated once the peer achieved 100% accuracy on a procedural fidelity checklist for two consecutive sessions. Without researcher interference, the dyads worked collaboratively during the intervention phase session and the peers utilized the peer support strategies to encourage independence and engage in social interactions with the student. During the intervention phase, data were collected on the number of times the SwSD independently engaged in work tasks (i.e., without assistance or prompting from the peer) and the number of social interactions between the student and the peer for each work-based activity session. The results were reported as percentages of the session. When the first dyad demonstrated a stable level change, the next dyad began the training phase. The intervention continued to be staggered across all dyads to ensure experimental control.

Generalization probes. Generalization probes were randomly interspersed into the baseline and intervention phases for each dyad. For the generalization probes, the dyads worked on copying papers for the special education teacher. At the school, both students with and students without disabilities assist with copying for teachers and staff. The participants in this study had never helped or copied papers before the generalization probe. During the probes, the dyads were brought to the copy room by the researcher and instructed to copy the various items

using the copy machine. No formal instruction on completing the task or on peer support strategies took place during generalization probes.

Data collection. Independent engagement in work tasks and social interactions were observed and recorded using a data collection form adapted from Carter, Cushing, Clark, and Kennedy (2005). The work tasks were coded for several items. During the recording time interval, coders (i.e., researcher, one doctoral graduate student) identified if the student and/or peer were engaged in a work task. Next, coders ascertained if the SwSD was engaged in the work task independently (e.g., no prompts). If a prompt was given, the type of prompt used by the peer (e.g., visual, verbal, gestural, or hand-over-hand) was recorded. Examples of prompts included the peer using a gesture (e.g., pointing), using a visual cue (e.g., pictures of the required work tasks), verbally repeating the direction (e.g., verbally repeats the direction without another type of prompt), or providing hand-over-hand assistance (e.g., the peer helps the student pour the recycling into the main bin).

Social interaction data were collected while the dyads engaged in the work-based activity. First, the coders recognized if the dyad was engaged in a social interaction during the recording time interval. Next, it was determined if the student or the peer initiated the social interaction at the beginning of the time interval. If the dyads were in the middle of a conversation when the interval occurred, the student making the first social bid within the time interval was coded as initiating the interaction. Examples of social interactions were asking questions about hobbies at home, restating or clarifying directions, smiling at each other while making eye contact, and giving high fives in response to completing a work task. Examples of non-social interactions were no interaction between dyads or interacting with other people.

In addition to the number of social interactions exhibited by the dyads, the quality of the social interactions was rated. The quality of social interactions was assessed using a 5-point Likert-type scale adapted from Carter et al. (2005). Anchors on the Likert scale ranged from no interaction or poor quality (1) to high quality (5), and ratings were based on the dyads' affect and reciprocity. Table 3.1 provides descriptions and examples for the 5-point Likert scale.

Table 3.1

Quality of Social Interactions Rating Definitions

Rating	Definition	Examples
1	Interaction is of poor quality (negative).	Reprimands, teasing, bullying, providing behavioral consequences to another student, calling someone stupid, telling another student "no" or to "stop".
2	Interactions are infrequent, brief and are neutral in affect.	Short brief greetings, "Hi" or brief support (physical, verbal, or gestural). Social contact is unreciprocated. The tone or affect remains neutral.
3	Interactions are fair in quality.	A peer is initiating a social interaction and the student responds and vice versa. The student follows the direction or answers the question. The affect of both partners remains neutral, that is, there is no real enjoyment. Partners are going through the motions.
4	Interactions have a positive affect and are sustained.	Consistent or sustained positive involvement between partners (smiling and giggling) for 1 reciprocal interaction. The peer may be guiding the student with the task but the student responds socially (makes a comment, joke, asks a question). Partners are working together and in a sustained manner and seem to enjoy each other's company. Partners may be involved in a conversation unrelated to the work content and are smiling and chatting.
5	Interactions are of high quality. There is a sustained interaction or exchange that maintains a positive effect. More intense than "4".	Partners are clearly expressing positive emotions in a sustained exchange for 2+ reciprocal interactions. Partners may be involved in an activity that is highly motivating and exciting for each other. They show this by their intense involvement and smiling or laughing.

Dependent Variables and Measurement

Data were collected on three dependent variables during a time interval: (a) the number of work tasks engaged in by the SwSD without prompts from the peers, (b) the number of social interactions between the student and the peer, and (c) the quality of the social interactions between dyads. Independent engagement in work tasks was defined as when the student was occupied with work tasks and no prompts were given by the peer. The number of times the SwSD was independently engaging in work tasks were tallied along with the types of prompts provided by the peer to the student during each recording time interval (i.e., once every 30-seconds).

Social interactions were defined as the communicative exchanges between the student and peer that involved verbal (e.g., verbal communication between two individuals, use of a low or high tech communication device to speak) and nonverbal exchanges (e.g., gestures with hands, eye contact, smiling, facial expressions) between the student and peer only. The number of social exchanges between the student and the peer was tallied during the recording time interval. After determining if there was a social interaction between the dyads, the quality of that social interaction was coded using the 5-point Likert scale. The quality of social interactions was defined as a concentrated expenditure of involvement between the SwSD and the peer. The interaction was rated on based on both students' affect and reciprocity.

Data were collected on the dependent variables using a 30-second partial interval sampling procedure over the work-based session (Gast & Ledford, 2014). Each work-based session lasted an average of 21 minutes (range = 11 – 29 minutes) for each dyad. At the end of every 30-second interval, data collectors spent approximately 5 seconds observing the dependent variables occurring and recording the data observed. This data collection method allowed for

sufficient opportunities to capture the behaviors demonstrated by the students while working on the work-based activity.

Work tasks. The special educator identified the work tasks required to complete the recycling activity and the copying activity (generalization probes) and outlined the tasks for each activity. The task analyses presented in Table 3.2 provided a breakdown of complex work tasks into the smaller, less complicated, or more doable tasks or steps that the students completed during the work-based activity. Examples of work tasks for the recycling activity included greeting teachers and staff in the offices, collecting the recycling bins in each classroom, dispensing the recycling into a larger container on the cart, pushing the cart to the next classroom, and returning the recycling cart to the basement via the elevator.

Table 3.2

Task Analyses for Work-Based Learning Activities

Intervention Work Activity	Generalization Probes Work Activity
Recycling Task	Copying
• Take elevator to basement	• Walk to the bookstore back room
• Get the recycling cart from the tunnel	• Knock on the door and open the door
• Take the elevator to the floor with the classrooms you are collecting from	• Choose a copy machine that is available
• Knock on the classroom door	• Enter the department code
• Open classroom door	• Lift the copy machine lid
• Say, "Recycling" or "I'm here for the recycling."	• Place the paper face down on the screen in the top left-hand corner vertically
• Pick up the recycling bin	• Close the copy machine lid
• Walk out of the classroom	• Enter the front/back preferences (if applicable)
• Dump the small recycling bin into the recycling cart	• Enter the number of copies to be made
• Walk back into the classroom with the small recycling bin	• Press the green "start" button
• Put the small recycling bin back where it was	• Lift the copy machine lid and flip the paper over (if applicable for front/back copies)
• Say "Thank you!" or "Good-bye!"	• Press the green "start" button again (if applicable)
• Walk out of classroom and close the door	• When the copies are finished, take them from the tray and put them on the nearby table
• Repeat steps #4 – 13 for all the classrooms you are assigned	• Lift the copy machine lid and grab the original paper
• When complete, walk back to the elevator and return to the basement	• Place original paper on top of finished copies
• Put the recycling cart back in the tunnel	• Complete steps #4 – 14 for all required copies
	• When complete, grab the copies and walk back to the classroom
	• Place the stack of copies on Ms. R's desk

Social interactions. For purposes of this study, data collectors only recorded social interactions between the student dyads. Social interactions could have been related to the work activity (e.g., commenting about the job, asking about the task) or unrelated activities (e.g., discussion about school activities, home hobbies). Examples of social interactions were asking questions about hobbies at home, restating or clarifying directions, smiling at each other while making eye contact, or giving high fives in response to completing a work task. Examples of non-social interactions included when the peer and the student are not interacting with each other or interacting with other people in their environment. The participant who initiated the interaction was also recorded which was the student or peer who began the conversation during the recording interval. When a social interaction occurred between the dyad, the quality of that interaction was rated using a 5-point Likert scale to accurately represent both students' affect, reciprocity, and exchanges.

Observer Training and Reliability

Data collector training. The researcher served as the primary data collector. One doctoral graduate student assisted in data collection for inter-observer agreement. She trained the doctoral graduate student in four steps: (a) reviewed the data collection manual and sheet, (b) discussed and answered questions about the data collection procedures, (c) conducted in-situ observations of students with and without severe disabilities (non-participants in the study) working and recorded the dependent variables together, and (d) discussed the discrepancies in data collection to determine the source of differences. Discrepancies were resolved through consensus. The criterion for agreement was set at or above 80% for each session to be considered reliable.

Fidelity. Fidelity of implementation is the measurement of whether the critical components of a program are demonstrated as expected or taught (Century, Rudnick, & Freeman, 2010). By embedding fidelity of implementation into a single case design study, it can offer "…more definitive statements to be made regarding the interrelation between interventions and dependent measures," (Kennedy, 2005, p. 110). Figure 3.2 displays the fidelity checklist used in this study. The researcher completed the checklist after every peer support training session. In order to move to the intervention phase, each peer had to obtain 100% on the fidelity checklists on two consecutive training sessions. Fidelity of implementation for all five peers was at 100%.

Peer Support Training Fidelity Form

Youth's Name:	
Researcher's Name:	
Date:	

Directions: Check "Yes" or "No" for each peer support practice performed independently.

Skill	Yes	No
1. Supported partner on work tasks (i.e., answer questions, set partner up with correct materials, help when asked)		
2. Provided partner with correct materials needed to complete task		
3. Restated directions verbally (and with a gesture if needed) if no follow through		
4. Asked questions/made comments about work tasks completed		
5. Asked social questions/made comments about interests		
6. Made sure the work was done in a timely manner		
7. Provided partner with verbal and nonverbal praise		

Strengths:		
Areas to Improve (areas with 'no' checked)		
Has this youth met 100% fidelity of peer support interventions performed correctly (circle one)	YES	NO

Figure 3.2: Fidelity of implementation checklist for training sessions

Treatment fidelity checklists (Figure 3.3) were completed after intervention sessions by the researcher and the peer. These checklists were used to examine whether the intervention (i.e., peer support) was implemented consistently and correctly. On average, treatment fidelity was collected on 88.7% of the work-based sessions to verify that the peers correctly implemented the intervention. Treatment fidelity for each peer was: (a) 97.6% reliable across 63.6% of intervention sessions for Jenny, (b) 100% reliable across 100% of intervention sessions

for Melissa, (c) 85.7% reliable for 80% of the intervention sessions for Rose, (d) 92.9% reliable

across 100% of intervention sessions for Julia, and (e) 100% reliable for 100% of the

intervention sessions for Katie.

<u>Peer Support Checklist</u>

Youth's Name:	
Date:	

Directions: Check "Yes" for each strategy you completed.

Skill	Yes
1. I worked alongside my partner	
2. I made sure my partner had all the necessary materials	
3. I repeated directions if my partner needed it	
4. I asked questions about the job to my partner	
5. I asked social questions to my partner and answered questions if asked	
6. I made sure the job was done in a timely manner	
7. I provided my partner with verbal and nonverbal praise	

Strengths:

Figure 3.3: Treatment fidelity checklists for intervention phase sessions

Reliability. The researcher and doctoral graduate student collected reliability data on

36% of baseline observations and on 43% of intervention observations across all participants.

The percentage of inter-observer agreement (IOA) was calculated by dividing the number of

agreements by the number of agreements plus disagreements and multiplying by 100% for each

category. Inter-observer agreement was at 97.3% agreement (range = 93.5 – 99.6%) for the

baseline sessions and at 97.8% agreement (range = 95.7 – 98.9%) for the intervention sessions

across participants.

Social Validity

Wolf (1978) postulated that social validity was comprised of three components: (a) the

social significance of the behavior goals, (b) the social appropriateness of the procedures to reach

those goals, and (c) the social importance of the effects. When evaluating the social validity of

peer supports, feedback from the participants on these three components is vital to yielding a

feasible and effective intervention. The special education teacher and the peers were asked to

share their views about the study at the completion of the intervention phase. A social validity

questionnaire developed by Carter et al. (2016) was adapted and distributed to the special

education teacher and peers to rate the social benefits, work benefits, feasibility, and

effectiveness of peer supports in a work-based learning setting using a 5-point Likert scale.

Students with severe disabilities were individually interviewed by the researcher using an

adapted social validity questionnaire developed by Carter et al., (2016) discussing peers,

engagement in work tasks, and satisfaction of the activity. The survey was read out loud and

students used a 4-point Likert scale to answer the questions (i.e., *yes*, *no*, *unsure*, or *unclear*).

<center>**Results**</center>

The data across dyads demonstrated a functional relation with a moderate to significant

level increase in both independent engagement in work tasks and social interactions for SwSD

between the baseline and the intervention phases. The outcomes of dependent variables are

represented in Figures 3.4 and 3.5 respectively as a percentage of each work-based session. The

average quality of social interactions across phases per dyad is displayed in Figure 3.6. In Figure

<center>63</center>

3.7, the average number of social initiations per participant across phases is presented.

Generalization probes were also conducted in a different work-based activity (e.g., copying).

The researcher did not conduct any additional training for the generalization probes. Since all

dyads participated in only one to three generalization probes, data will be presented and

described. Conclusions about the dyads' abilities to generalize skills cannot be made using this

data.
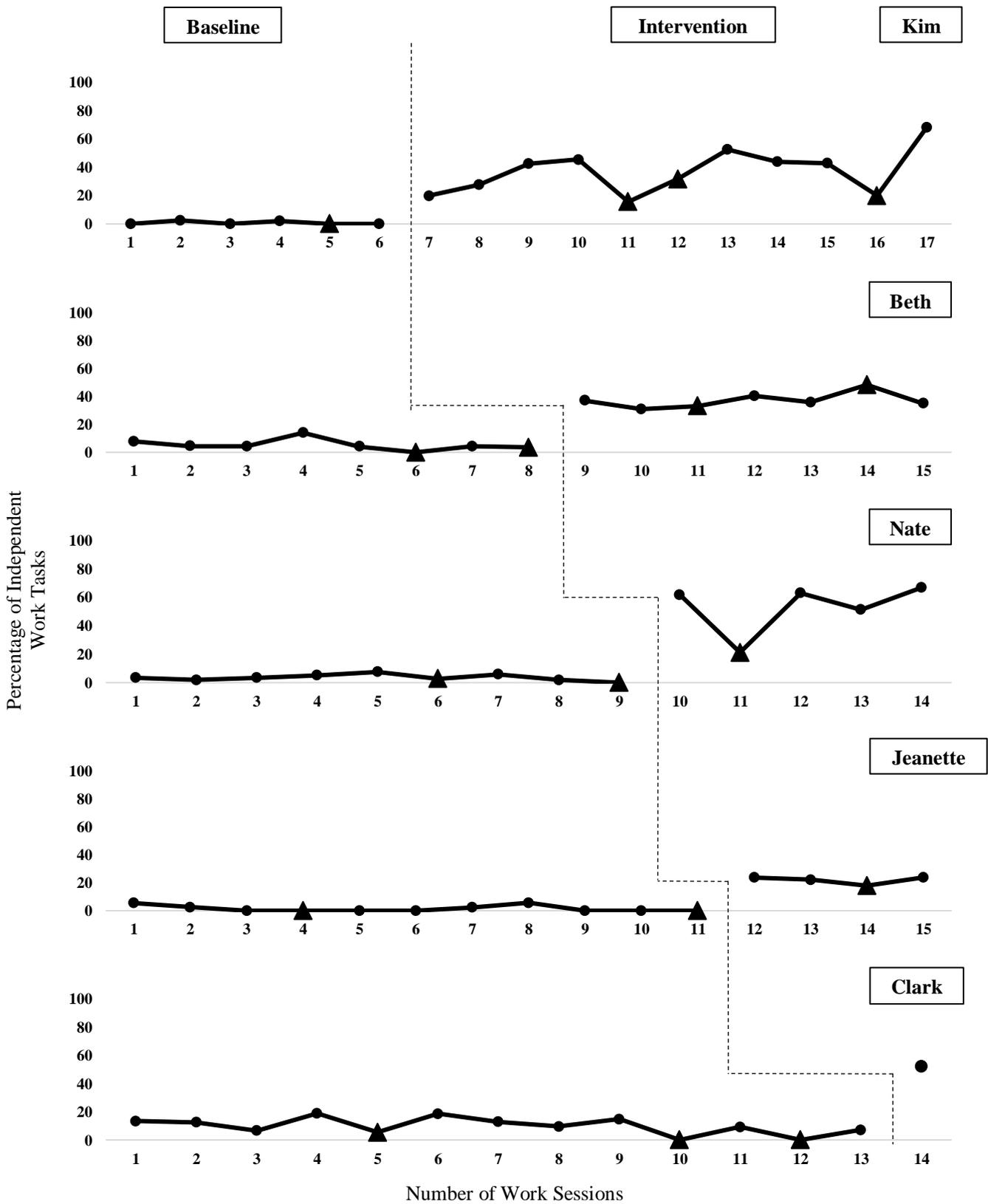
Figure 3.4: Independent engagement in work tasks
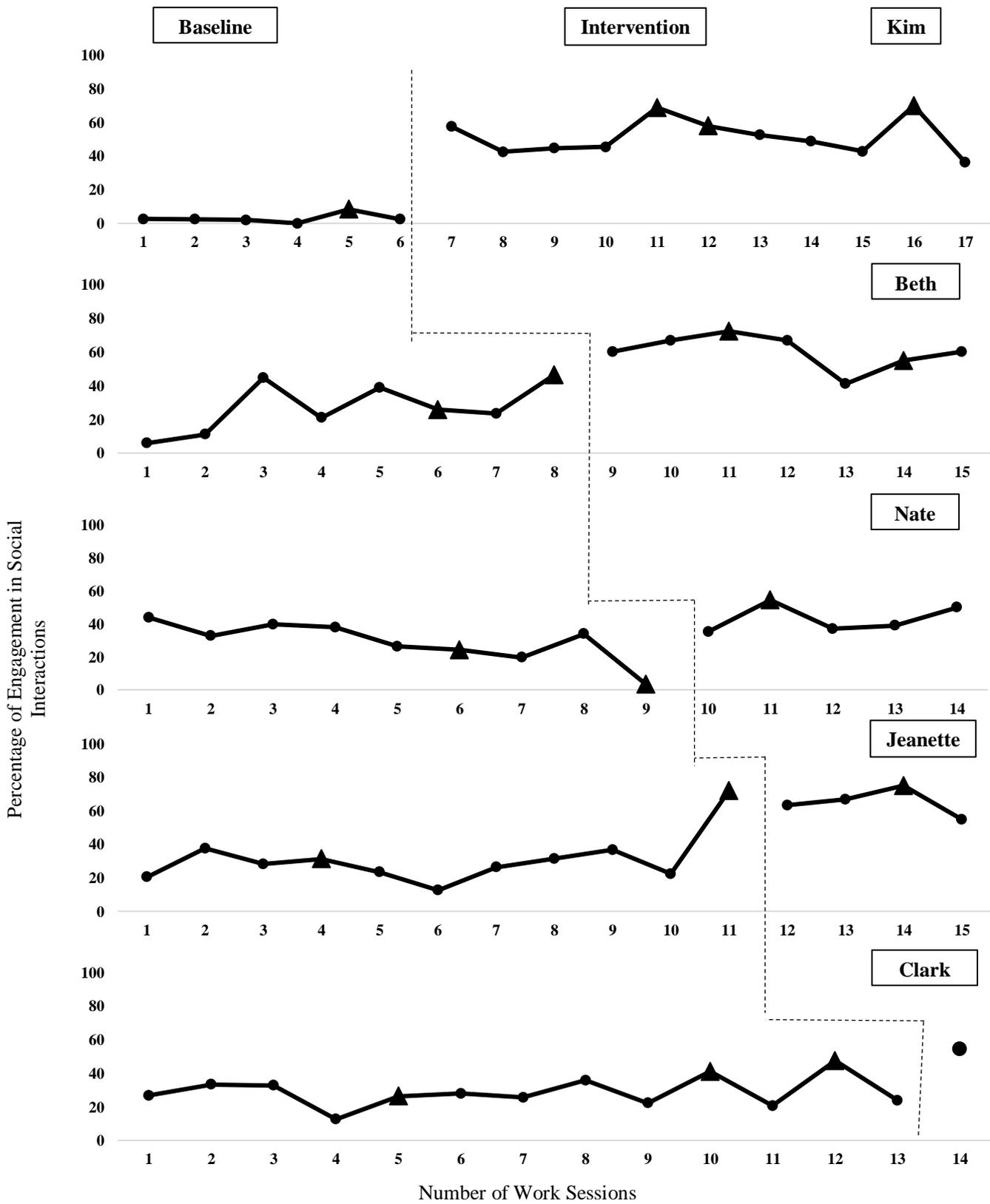
Figure 3.5: Engagement in social interactions
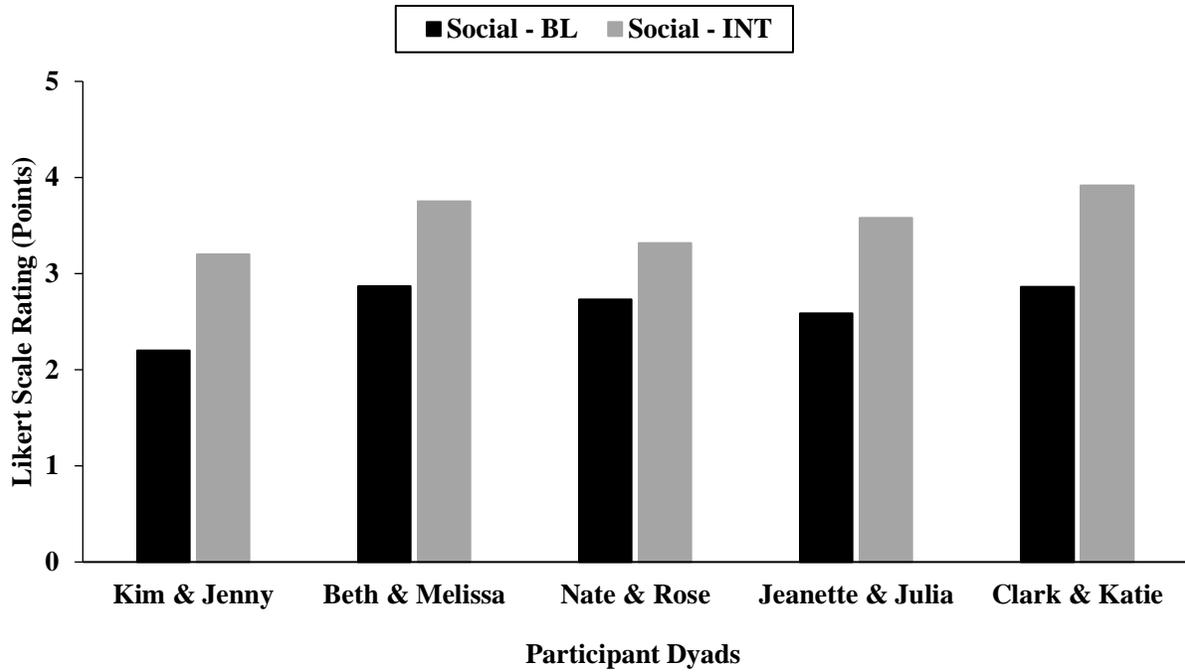
Figure 3.6: Average quality of social interactions per phase across dyads
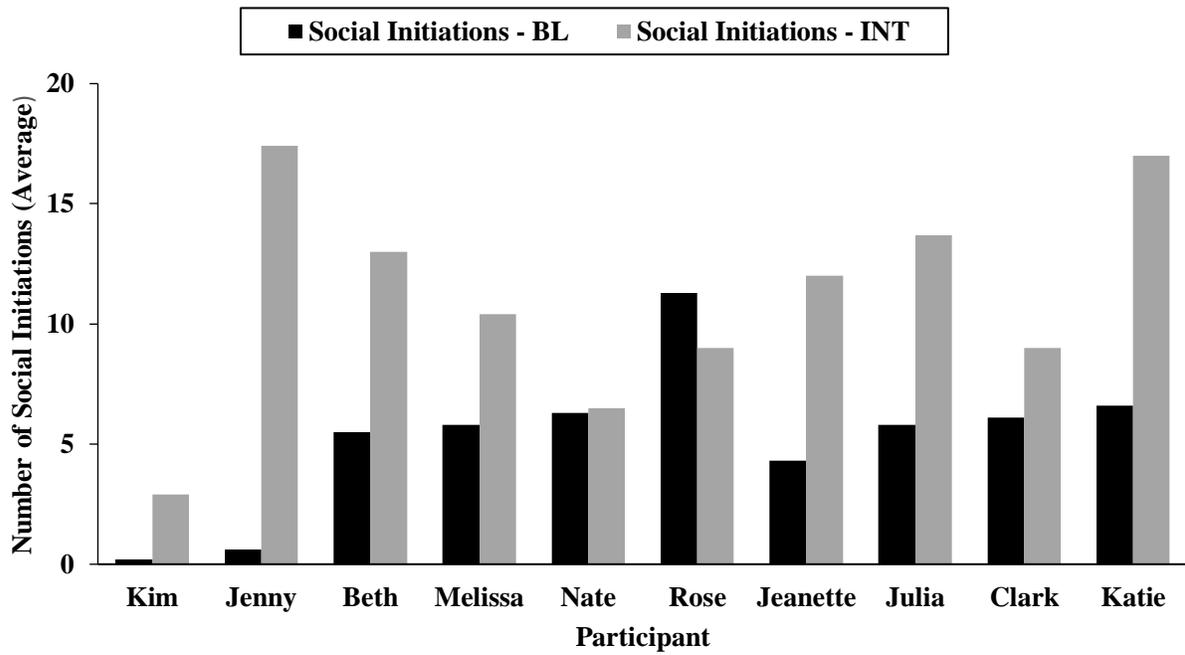
Figure 3.7: Average number of social initiations per participant across phases

Kim and Jenny

     Baseline. Due to all dyads displaying a steady baseline, Kim and Jenny were randomly selected first to start the peer support training and the intervention phase. They worked together for five baseline sessions and one generalization session. Kim independently engaged in work tasks 0.94% (range $= 0 - 2.5\%$) of the time while recycling with Jenny during baseline. The trend line during baseline remained stable and decelerated over the phase. Kim and Jenny's data reveal they engaged in social interactions while working on average 1.9% (range $= 0 - 2.6\%$) of the time. The social interaction trend line for Kim's baseline data was also stable and decelerating. The average quality of the social interactions between the dyad members in baseline was 2.2 out of five points (range $= 0 - 3$). Furthermore, the average number of social initiations for Kim was 0.2 (range $= 0 - 1$) times and Jenny's average number of social initiations in baseline was 0.6 (range $= 0 - 1$) times.

     Intervention. After training Jenny in the peer support strategies, the data demonstrated a moderate to significant increase in the percentage of work skill independence for Kim and percentage of social interactions between Kim and Jenny. The dyad worked together for 11 intervention sessions and three generalization probes. During the intervention phase, data revealed that Kim independently engaged in work tasks on average 38.2% (range $= 20 - 68.1\%$) of the time. During the intervention phase, the independent work task trend line was variable with an accelerating direction. Additionally, the percentage of engagement in social interactions between Kim and Jenny during the session also increased moderately to an average of 46.4% (range $= 36.2 - 57.5\%$) of the time. The trend line for the intervention phase in social interactions was variable and technically decelerating. This could be due to the dyad focusing more on engaging in work tasks versus socialization during the last work session. The quality of

the social interactions also improved during the intervention phase. The average quality of social interactions for intervention was 3.18 points (range = 2.83 – 3.55). Kim increased her average number of social initiations during intervention to 2.9 (range = 0 – 6) times and Jenny increased the average number of social initiations to 17.4 (range = 14 – 20) times. The percentage of non-overlapping data points (PND) was calculated to determine if peer supports was an effective intervention for Kim. The PND was 100%, which suggests that peer supports was highly effective to improve the independent engagement of work tasks and social interactions for Kim during a work-based activity.

Generalization probes. Kim and Jenny participated in one generalization probe during baseline and for three during the intervention phase. Kim performed no independent work tasks when copying with Jenny in the probe setting during baseline. The largest percentage of social interactions between them during baseline occurred in the probe (8.3% of the time) which could have been due to a new setting with novel work tasks. The quality of the social interactions in this probe was 2.33. Kim initiated socializations one time in the probe and Jenny initiated socialization two times.

Kim independently engaged in work tasks during the probes in the intervention phase on average 22.4% (range = 15.6 – 31.6%) of the time compared to 0% of the time during the baseline probe. Kim and Jenny engaged in social interactions on average 65.6% (range = 57.9 – 70%) of the time, which is significantly higher than baseline (8.3%). Furthermore, the average quality of social interactions during the generalization probes was 3.1 points (range = 2.82 – 3.43). While Kim initiated the same number of social interactions in intervention as in baseline (average = 1, range = 0 – 2) during the probes, Jenny's initiations increased to 14.7 (range = 10 – 22) from two. Again, conclusions about Kim and Jenny's abilities to generalize skills into a

different setting cannot be determined but the results in this study indicate that skills could potentially transfer to a new setting because of the positive level changes between phases for Kim and Jenny.

Beth and Melissa

　　Baseline. Beth and Melissa were the second dyad to move onto the peer supports training due to the independent work task data demonstrating a decelerating, yet stable baseline. Baseline lasted for eight sessions; whereas two of those sessions were generalization probes. On average, Beth independently engaged in work tasks 6.5% (range = 4.1 – 14%) of the time. The trend line for Beth's baseline data was decelerating with minimal variability. However, Beth and Melissa's social interactions during baseline were extremely variable. On average, the data showed they were engaged in social interactions 24.2% (range = 5.9 – 44.7%) of the work session. In addition, the trend line for social interactions during the baseline phase was accelerating, yet, also variable which might explain the reason for the minimal acceleration. The average quality of social interactions in baseline was 2.8 points (range = 2.3 – 3.2). These data reveal that many of their social interactions were either one-sided (e.g., one person would attempt to engage and the other person did not respond) or responded briefly to a social attempt (e.g., followed through with a direction, answered in one-word, low affect responses). In addition, Beth's average number of social initiations during baseline was 5.5 (range = 0 – 12) times. Similarly, Melissa's average number of social initiations was 5.8 (range = 2 – 11) times.

　　Intervention. The dyad participated in seven intervention sessions with two generalization probes. Beth's data demonstrated a significant level change between baseline and intervention for independent engagement in work tasks and a moderate level change for social interactions. The data presented an increase in work task independence on average to 35.9%

(range = 31 – 40.5%) of the time. The trend line for Beth's intervention phase in work task independence was variable with minimal deceleration. For social interactions between Beth and Melissa, the data demonstrated an average increase to 58.9% (range = 41 – 66.7) of the time. The trend line was zero-celerating and remained steady. A noticeable change in data was observed in the quality of the social interactions between baseline and intervention phases. In intervention, the data demonstrated an average quality of 3.75 points (range = 3.67 – 4), which was almost a full point of improvement in social interaction quality between phases. For social initiations during intervention, Beth's average number increased to 13 times (range = 8 – 16) and Melissa's average number of social initiations increased to 10.4 times (range = 8 – 12). The PND was also calculated to determine if peer support was an effective intervention for Beth. The PND remained at 100% for independent work tasks and 80% for social interactions, which indicates that peer supports was a highly effective intervention for Beth in a work-based activity.

Generalization probes. Beth and Melissa engaged in two baseline sessions and two intervention phase generalization probes. During probes in baseline, Beth's data revealed less independent engagement in work tasks on average at 1.8% (range = 0 – 3.6%) of the time than in the regular baseline activity. Social interactions occurred on average 36.1% (range = 25.8 – 46.4%) of the time and the average quality of the social interactions was a 2.7 (range = 2.46 – 2.88) on the 5-point Likert-scale. Beth initiated social interactions on average 1.5 (range = 1 – 2) times and Melissa initiated interactions on average 9 (range = 6 – 12) times per session.

During the intervention phase probes, Beth engaged in work tasks independently 40.9% (range = 33.3 – 48.4%) of the time compared to 1.8% of the time in baseline. Beth and Melissa increased their engagement in social interactions to 63.5% (range = 54.8 – 72.2) of the time from 36.1% in baseline. The average quality of social interactions was on average 3.7 points (range =

3.5 – 3.9), which was a full point greater than in baseline. Beth and Melissa appeared to engage in more reciprocal interactions during the probe sessions. Beth increased her social initiations during the intervention probes to an average of 6.5 (range = 4 – 9) times, whereas Melissa's social initiations remained stable at 8.5 (range = 8 – 9) times. Overall, Beth and Melissa's abilities to generalize skills into a different setting cannot be determined with these results but suggest that they could potentially transfer skills into a new setting because of the positive level changes displayed between phases in the probes.

Nate and Rose

     Baseline. The third dyad to begin training was Nate and Rose. Baseline was comprised of nine work sessions with two sessions as generalization probes. The trend line in baseline for Nate's independent engagement in work tasks was stable and decelerated. His data revealed an average percentage of independent engagement in work tasks 4.2% (range = 1.8 – 7.5%) of the time. The trend line for social interactions was variable and consistently decelerating with a significant decrease in the last baseline point before intervention. The average percentage of engagement for social interactions was 33.4% (range = 19.6 – 43.9%) of the time and the average quality was 2.7 points (range = 2.5 – 2.95). During baseline, Nate initiated social interactions on average 6.3 (range = 4 – 11) times per session and Rose initiated social interactions almost twice as much at 11.3 (range = 2 – 18) times per session.

     Intervention. After Rose was trained in peer support strategies, the dyad worked together for four intervention sessions and one generalization probe. Nate's work task independence increased significantly in the intervention phase. He engaged in independent work tasks on average 60.7% of the session (range = 51.2 – 66.7%). During intervention, Nate's trend line accelerated overall and remained stable. For social interactions, the percentage of

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engagement during the intervention phase sessions increased to an average of 40.4% (range = 35.3 – 50%) of the time. The trend line during the intervention phase was again, accelerating and stable. Additionally, the quality of interactions between baseline and intervention between phases improved moderately. During the intervention phase, the average social interaction quality was 3.3 points (range 2.83 – 3.71). While the quality of social interactions improved for the dyad, the number of initiations remained the same for Nate (6.5 times, range = 3 – 14) and decreased for Rose (9 times, range = 6 – 13). The percentage of non-overlapping data for independent work tasks was 100% which suggests that peer supports is a highly effective intervention for Nate to improve his work skill independence. However, the PND for social interactions was 25%, which suggests that peer supports in a work-based learning setting may not be an effective intervention for Nate to learn social skills.

Generalization probes. Nate and Rose participated in two baseline sessions and one intervention generalization probe. Nate's baseline probe data showed that he was independently engaged in work tasks on average 1.35% (range = 0 – 2.7%) of the time. The dyad engaged in social interactions during the probes on average for 13.8% (range = 3.3 – 24.3%) of the time. The quality of these social interactions was 2.8 points (range = 2.56 – 3). During the baseline probe, Nate initiated social interactions on average 1 (range = 0 – 2) time per session and Rose initiated socializations 4 (range = 1 – 7) times per session.

For the intervention phase probe, Nate independently engaged in work tasks 21.2% of the time and in social interactions with Rose 54.5% of the time. The quality of social interactions during the probe was 3.2 points, which is a minimal increase from 2.8 points during baseline. Additionally, Nate initiated interactions only three times but Rose increased her social initiations to 15 times. As has been noted, Nate and Rose's ability to generalize skills to a novel setting

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cannot be determined with the current data.   However, the generalization probe results suggest

the dyad's potential ability to generalize skills into a novel work-based learning setting.

Jeanette and Julia

Baseline. Jeanette and Julia worked together for nine baseline sessions with two

generalization probes. The baseline trend line for Jeanette of independent engagement in work

tasks remained stable with minimal deceleration. On average during baseline, Jeanette

independently engaged in work tasks 1.8% (range = 0 – 5.7%) of the time. Engagement in social

interactions for the dyad was extremely variable during baseline. On average, the data showed

they socially interacted 26.5% (range = 12.5 – 37.5%) of the time. The trend line for the social

interactions was moderately variable with minimal acceleration. Furthermore, the quality of the

social interactions averaged to 2.59 points (range = 2.3 – 2.91) for baseline. Many of the social

interactions appeared to be one partner initiating a social interaction and the other partner not

responding. Jeanette's data revealed she initiated social interactions with Julia on average 4.3

(range = 1 – 8) times per work session. Julia's data showed on average she initiated social

interactions 5.8 (range = 2 – 11) times per session.

Intervention. The dyad participated in four intervention phase sessions with one session

as a generalization probe. Jeanette's data demonstrated a moderate increase in work task

independence during the intervention phase. On average, Jeanette engaged in independent work

tasks for 23.2% (range = 22.2 – 23.8%) of the time compared to 1.8% in baseline with a stable

yet accelerating trend line. Jeanette and Julia's social engagement during the intervention phase

made a significant level change. For the intervention phase, the dyad engaged in social

interactions on average 61.6% (range = 54.8 – 66.7%) of the time. Even with the baseline

generalization probe outlier in session #11, the trend line during the intervention phase remained

at a high level and continued to minimally accelerate through the phase. The quality of social interactions between the baseline and intervention phases increased significantly as well. During the intervention phase, the average quality of social interactions was at 3.6 points (range = 3.39 – 3.75). Furthermore, the average number of social initiations for both Jeanette and Julia increased during intervention. Jeanette increased her initiations to 12 (range = 11- 14) times per session and Julia increased her initiations to 13.7 (range = 12 – 16) times per session. The PND for work task independence and social interactions was 100%, which validates peer supports as a highly effective intervention for Jeanette.

Generalization probes. Jeanette and Julia participated in two baseline and one intervention generalization probe. During the baseline probes, Jeanette independently engaged in work tasks 0% of the time and in social interactions with Julia 51.6% of the time (range = 31.2 – 72%). The average quality of the social interactions was 2.77 points (range = 2.7 – 2.83) for the baseline probes. Jeanette initiated socialization on average 2 (range = 0 – 4) times per session and Julia initiated socialization on average 13 (range = 12 – 14) times per session. This data reveal that during the baseline probes, Jeanette and Julia socially engaged much of the time but the quality of these engagements was poor.

Jeanette and Julia were only able to participate in one intervention generalization probe because of peer absences (e.g., taking end of the year exams, band practice). Jeanette independently engaged in work tasks 17.9% of the session and the dyad socially interacted 75% of the time. The quality of social interactions rose to 3.5 points. Jeanette's initiations decreased during the probe (5 times during the session), however, Julia's remained high at 16 times during the session. Again, Jeanette and Julia's ability to generalization skills to a new setting cannot be determined with the current data because of the lack of data. Nevertheless, the data presented a

positive change which could imply the dyad's potential to generalize skills into a different work-based learning setting.

Clark and Katie

      Baseline. Clark and Katie were the final dyad to participate in the peer supports intervention simply due to all previous dyads being randomly chosen before them. They engaged in 13 baseline sessions and three of these sessions were generalization probes. Clark's baseline trend line demonstrated a decreasing engagement in work task independence. His work task independence averaged 12.3% (range = 6.5 − 18.8%) of the time during baseline. However, Clark's social interaction data was highly variable. His data revealed engagement in social interactions during baseline 26.1% (range = 12.5 − 35.7%) of the time. The trend line in social interactions for Clark was variable and decelerated steadily. The quality of the social interactions between Clark and Katie also varied during baseline. During baseline sessions, the quality of social interactions was at 2.86 points (range = 2.6 − 3.5). Clark was an extremely social student who preferred talking to teachers instead of peers. Clark initiated social interactions on average 6.1 (range = 4 − 9) times per session with Katie and she initiated socializations almost the same at 6.6 (range = 3 − 11) times per session.

      Intervention. Due to student and peer absences, final exams, and the end of the school year activities, Clark and Katie were only able to engage in one intervention work session. No generalization probes were conducted during the intervention phase. For the one intervention session the dyad participated in, Clark's data demonstrated a significant level change in work task independence and a moderate level change for social interactions. Clark independently engaged in work tasks 52.1% of the time and in social interactions with Katie 54.2% of the time. Additionally, the quality of the social interactions improved almost a full point on the Likert

scale from 2.86 points in baseline to 3.92 points in intervention. Katie worked with Clark to be more independent in work tasks while improving the quality of social interactions to include more reciprocal interactions. During the one intervention session, Clark initiated social interactions 9 times and Katie initiated socializations 17 times. The PND for both work task independence and social interactions was 100% revealing that peer support could be a highly effective intervention for Clark in a work-based setting.

Generalization probes. During the baseline generalization probes, Clark's data revealed independent engagement in work tasks on average 1.77% (range = 0 – 5.3%) of the time. Clark and Katie's average percentage of social interactions during probes was 38.2% (range = 26.3 – 47.4%) of the time. The average quality of the social interactions was at 3.3 points (range = 2.8 – 3.89) during the probes. Clark initiated social interactions with Katie on average 5.7 (range = 3 – 9) times during the probes and Katie initiated on average 4.7 (range = 3 – 6) times. Again, due to student and peer absences, final exams, and end of the year festivities, no generalization probes were conducted during the intervention phase. Therefore, no conclusions can be made about Clark and Katie's abilities to generalize skills into novel settings.

Social Validity

Results from the social validity interview with the SwSD are in Table 3.3. Each student with severe disabilities was read a list of eight questions by the researcher in a quiet space in the classroom or outside in the hallway when it was quiet. Students' answers were recorded as *yes, no, unsure,* or *unclear.* All the SwSD reported they enjoyed working with their peers, learned new things on the job, and considered the peer their friend. While the students answered questions using yes/no/unsure, several students smiled and excitedly stated their answers when asked if they enjoyed working and would like to continue working with their peer. One student

reported he would like to keep working with his peer "sometimes", which was recorded as

unsure. Students were also asked if they had any comments about the study and/or their peer.

Only one SwSD provided feedback by answering, "working on recycling and the garbage."

Table 3.3

Students with Severe Disabilities Survey Results

Survey Items	Student Responses			
	Yes (%)	No (%)	Unsure (%)	Unclear (%)
Do you like going to school?	100	0	0	0
Do you have friends at school?	100	0	0	0
Do you like your recycling job?	100	0	0	0
Did you learn new things in your recycling job?	100	0	0	0
Did you like work with [peer name] in the recycling job?	100	0	0	0
Did working with [peer name] help you learn new things?	100	0	0	0
Is [peer name] your friend?	100	0	0	0
Would you like to keep working with [peer name]?	80	0	20	0

Peers and the special educator filled out a questionnaire about the social validity and

perceptions about the study. Results are found in Table 3.4. Overall, all peers and the special

educator believed participating in the study was worthwhile. Most of the peers perceived that

their partners improved in work task independence and social interaction skills and felt they, the

peers, were confident in being a peer mentor with the training provided. The peers and the

special educator deemed the intervention was not difficult to implement in a work-based learning

setting and understood how peer supports could be an asset in helping SwSD with vocational and

social skills. The special educator speculated she could use peer supports with other students in other settings, however, made a note that she may need more staff to include all her students. She also stated in the comment section that her students "…enjoyed having a friend and co-worker outside of our classroom." This enjoyment was reflected in the improved classroom behavior in the students reported by the special educator throughout the study.

Table 3.4

Peers and Special Educator Survey Results

Survey Items (Items adapted from Carter et al., 2016)*	Peers (n = 5)	Special Educator (n = 1)
Overall, I found participating in this study.	4.4	5
The students with a disability [peer name] benefitted socially from having a peer support (e.g., talks more to peers, has more friends).	4.4	5
The student with a disability [peer name] benefitted in work skills from having a peer support (e.g., works more independently, learns new skills).	4.8	5
The peers without disabilities [I] benefitted socially from being a peer support.	5	5
The peers without disabilities [I] benefitted in work skills from being a peer support.	4.8	5
At first, I was excited to become a peer partner.	4.2	--
I felt confident serving in this role.	4	--
I had enough help from the researcher to do this role well.	4.8	--
This was too much work for me.	1.6	--
I feel I was effective in this role.	4.2	--
The initial orientation meeting with the researcher was helpful.	4.6	--
Other students in the school should also do this.	4.8	--
I would be a peer support again in the future.	4.8	--
I understand why the teachers thought peer supports would be helpful for my partner with a disability.	5	--
Our school should have more peer supports for students with disabilities.	4.8	--
I consider my partner with disabilities to be my friend.	3.8	--
I would recommend being a peer support to my other friends.	4	--
My views about students with disabilities have changed for the better.	4	--
I also spend time with other students who have similar disabilities at my school.	4	--
I am motivated to keep using this strategy.	--	5
This strategy was a good way to address the educational needs of the student with a disability.	--	5
This strategy fits well within this work based learning setting.	--	4
The students with a disability has more friends as a result of this project.	--	4
This strategy negatively impacted other students in the work based learning setting.	--	1
I could use the strategies I learned through this project with other students.	--	5

Notes: *Adapted social validity questionnaire developed by Carter et al. (2016). A question was not asked of that participant if there is a hyphen in the cell.

Discussion

This study evaluated the impact of peer supports as an intervention to increase the independent engagement in work tasks and social interactions for transition-aged SwSD in an inclusive work-based learning setting. The findings reveal that when peers without disabilities utilized peer support strategies during a work-based activity, SwSD increased their work task independence, number of social interactions, the quality of the social interactions between the dyads, and the number of social initiations with their partner. These results demonstrate there is a functional relation between peer supports and the outcomes in vocational and social skills for SwSD. Furthermore, the results suggest that peer supports can be effectively used for transition-aged SwSD to address independent engagement in work tasks and social interactions in a high school work-based learning setting.

The positive outcomes in work tasks and social interactions for SwSD in this study add to the dearth of literature on the impact of peer supports in employment settings. Results from previous peer support studies have shown to increase social interactions (e.g., Storey & Garff, 1997; 1999) and vocational skills (e.g., Westerlund, Granucci, Gamache, & Clark, 2006) for SwSD in inclusive, authentic employment settings. This study shows how school personnel can create inclusive work-based learning opportunities to support building social and vocational skills. Opportunities such as this one may serve as a beginning stage of a larger program that includes school and community work-based learning sites. Additional research is warranted to evaluate if employability skills (i.e., vocational social skills) learned in a work-based learning setting in school can generalize to a community employment setting for students with and peers without severe disabilities.

Prior to the peer support intervention, the SwSD in this study demonstrated limited vocational independence when working with their peers during baseline. During intervention, three out of the four SwSD demonstrated marked and steady improvements in work task independence and remained at the higher level of independence through the intervention phase. Jeanette did not demonstrate a marked improvement in work task independence. This lack of improvement may be attributed to the fact that she required hand-over-hand assistance for most visual or physical tasks such as pushing the recycling cart, locating room numbers, locating and pressing the correct push buttons on the elevator, or copying materials using the copy machine. Jeanette's need for assistance may have been due, in part to not wearing her glasses. Overall, this significant level jump in work task independence is encouraging because the peers learned the peer support strategies and implemented them correctly when working with a SwSD to demonstrate positive outcomes. This finding is also consistent with Westerlund and colleagues (2006) results that demonstrated an increase in the number of completed work tasks of SwSD when working with a peer in a vocational program. In addition, the generalization probes conducted in this study showed that the peers were potentially utilizing the strategies in a new setting because the SwSD were beginning to demonstrate an increase in independent work. The levels of change in the probes were not as significant as during the intervention, however, this finding suggests that the generalization of independent work skills to new settings may be possible for SwSD when peer supports are available.

Although moderate increases in social interactions were witnessed, the overall quality of social interactions dramatically improved. This finding supports other research that suggest when peers learn how to interact and support communication with their partners, the number and quality of social interactions increase (Storey & Garff, 1999). For instance, in the classroom,

Kim communicated using one to three word utterances with limited social interactions. Once Jenny began to use peer supports to engage with Kim, her frequency and quality of social interactions increased. Similarly, during baseline, Jeanette did not socially interact much with her partner. Jeanette's repertoire was comprised of a limited number of discussion topics (e.g., a favorite television show, going up and down the elevator). However, for Jeanette the peer supports resulted in more reciprocal and high quality interactions that encompassed a wider range of topics. Even though the quality of social interactions improved dramatically across dyads, the moderate increase in the number of social interactions during intervention may be more reflective of a typical work experience. When people attend to their work, socialization may decrease. In this study, when SwSD increased their independent engagement in work tasks, their social interactions with the peers declined. More research is needed to determine if the level of social interactions changes were due to the type of work-based learning setting the dyads are working in or if these outcomes are more reflective of an authentic work experience. A comparative study comparing a collaborative approach to work tasks to an individual approach to work tasks could examine this level change in social interactions.

Generalization probes were conducted to examine whether the dyads could generalize the peer support strategies and the vocational and social skills into a novel setting. Unfortunately, not enough generalization probes were conducted across participants, thus, conclusions on the abilities of the dyads to generalize skills into novel settings cannot be determined. Furthermore, Clark and Katie were not able to participate in a generalization probe during the intervention phase due to lack of time. However, the current probe results reveal that the peers in this study could potentially implement the peer support strategies they learned to the novel setting because the SwSD demonstrated improvements in independently engaging in work tasks and in social

interactions. Quality and initiations of social interactions across dyads either remained stable or increased during the limited number of probes. Therefore, conclusive evidence about the generalizability of skills into novel settings was not determined in this study but data imply potentially positive results in the use of peer supports in novel settings.

Social validity survey results revealed that participants enjoyed working with each other, wanted to continue working with each other, and believed their partner was their friend. According to the survey, the SwSD had an overall positive experience with the peer supports. Also, the peers perceived the SwSD improved their work and social skills by working with them and felt the amount of peer support training was adequate for implementation. Several of the peers reported that their personal opinions about SwSD significantly changed for the better after working with their partners and would like to see more opportunities school-wide for students with and without severe disabilities to work and socialize together. The special educator was extremely positive in her review of the SwSD skills based on her social validity scores. These findings show that peer supports can be easily implemented, can change peoples' opinions about SwSD, and can create friendships between students with and without severe disabilities that may not have been possible before this opportunity. Future research should explore the social validity of peers supports using in-depth interviews or focus groups to provide a chance for all participants to discuss their perceptions on the peer support intervention and how it can be improved.

Implications for Practice

There are several implications for bridging the research to practice gap for school personnel and providing interventions for their SwSD. Often, special educators find it difficult to identify effective interventions that address vocational and social skills that can be easily

embedded into the general education settings (Bobroff & Sax, 2010). While the current body of research demonstrates that peer supports can be implemented into academic and non-academic school settings to build academic skills and social interactions between students with and without severe disabilities (Carter et al., 2005; Cushing & Kennedy, 1997), there is no research evaluating how peer supports can be implemented into a work-based learning setting in high school to improve vocational and social skills. This study demonstrates how a peer supports program can be applied in a work-based learning setting within the school to create a collaborative environment between students with and without severe disabilities and improve skills necessary for future employment. This finding has the potential to provide special educators with an intervention that can be confidently utilized to support SwSD when building improvements in both work task independence and social interactions with peers without disabilities.

Findings from this study also suggest that peers without disabilities can learn how to socialize with SwSD successfully in integrated school settings. Currently, there remains an overreliance on paraprofessionals to support SwSD in inclusive school settings. This overreliance has been found to hinder SwSD socializations with their peers without disabilities (Giangreco, Halvorsen, Doyle, & Broer, 2004). Giangreco and colleagues (2004) suggested that the role of paraprofessionals needs to shift to more of a guide and mentor. Studies have also shown that SwSD are more involved socially with their peers than with paraprofessionals (Shukla, Kennedy, & Cushing, 1999). It seems plausible that special educators may be able to use peer supports to encourage natural social interactions between students with and without disabilities in inclusive work-based settings and utilize the paraprofessional as a facilitator for

the dyad's interactions. This could help mold the role of paraprofessionals into more of a

supervisor-type which would mimic future employment environments.

Finally, this study found that peers could implement the peer support strategies with

fidelity. The peer, SwSD, and researcher trained together in the work-based learning setting for

three, 20-minute training sessions. These training sessions consisted of the researcher providing

feedback, answering questions, and demonstrating how to use each of the peer support strategies

with the SwSD in the activity. Once the training sessions were complete, no further prompts or

feedback were provided to the peer during the intervention sessions. Peers maintained a high

fidelity of the intervention without prompts from the researcher across all intervention sessions.

Therefore, special educators may use peer supports as a quick and efficient intervention for

building vocational and social skills in inclusive work-based learning settings in the school,

especially if access to vocational education or community-based instruction is limited.

Limitations

There were several limitations in this study. Like other single-case research design

studies, the small number of participants prevents the generalization of results to other work-

based learning settings and different disability populations of transition-aged SwSD. Another

limitation was the absence of a maintenance phase. The peers that volunteered to participate

were high school seniors and they graduated before the school year was finished, making it

impossible to conduct a maintenance phase. To circumvent this issue, generalization probes

were implemented to assess the effects of peer supports in a new setting within the school.

Subsequent studies should include maintenance phases and generalization probes to collect data

on whether the participants were able to maintain skills over time and in varied settings or with

different peers. Additionally, had recruitment occurred earlier in the school year, it may have been possible to prevent early termination of the study.

Another limitation of this study was that the work-based activity was selected by the special educator rather than by the SwSD who could have chosen tasks that aligned with future employment interests. Recycling was a job that both students with and without disabilities had done previously in the school and each SwSD participant had worked in the job at least once before this study, although the peers had not. Due to recycling not being a high-priority interest for the participants, results may not be as significant as they might have been with a highly preferred job. Additional research should identify future employment interests of the SwSD and attempt to create work-based learning settings in the school that would build independence in vocational skills and social interactions required for the work place. A final limitation of this study is that surveys were used to ascertain social validity information. Participants' perspectives and personal feedback about peer supports were not collected through interviews, which could have provided a rich, descriptive perspective of the intervention that could have supplemented the quantitative data collected.

Future Research

Currently, peer supports have limited evidence as an effective intervention in work-based learning settings in school. Future research should examine how the skills learned in a work-based learning setting in school may be practiced and generalized to authentic, community employment settings with coworkers without disabilities. Comparison studies between school-based and community-based employment settings could be conducted to analyze the similarities and differences in benefits and outcomes for transition-aged SwSD and their peers. Moreover, in

order to investigate how skills are learned, maintained and/or transferred, subsequent studies should include maintenance phases and generalization probes with novel peers and settings.

In both the previously conducted pilot study and this dissertation study, improvements in social interactions across dyads have not been significant. Some factors that could be affecting the social outcomes include noise level of work activities (e.g., pushing a recycling cart) or the fact that selected work-based activities were not collaborative in nature and therefore encouraged more independence when working. Research should focus on how to mimic natural work environments including break times where more socializing may occur in school and community settings or implementing peer supports into work-based activities that are more collaborative in nature. Perhaps having the students initially get to know one another before starting the work-based activity (e.g., after school game night, lunch date) may increase socializations while working.

In this study, the work-based activity was identified by the special educator. However, the SwSD who participated in the work did not have explicit post-school goals to work in recycling as a future career. Additional research should identify post-school goals of the student participants and attempt to set up a work-based activity that could enhance engaging in independent work tasks and social interactions for desired employment. If SwSD do not have enough experience in work-based activities to know what they like and do not like in terms of employment, then the special educator should identify possible work-based settings aligned to the students' personal interests and provide the SwSD an opportunity to sample a variety of work environments. Thus, by creating jobs in the school setting that can develop these skills before graduation may provide both students with and without severe disabilities foundational skills that are useful and necessary in most employment settings.

Finally, comparative studies should be conducted that evaluate the effects of peer supports, as opposed to adult staff support, on fostering work task independence and social interactions for transition-aged students in work-based learning settings. Same-aged students have a greater effect on each other than adults during high school (Shukla et al., 1999) and could potentially improve vocational and social skill outcomes more than paraprofessionals in inclusive settings. Therefore, it is necessary to explore the potentially different effects on these skills when SwSD work alongside peers without disabilities and adult staff.

Conclusion

This study is the first to address vocational and social skills in a work-based learning setting in high school using peer supports. The findings indicated that peer supports can have an impact on the improvement of work task independence and social interactions for transition-aged youth in inclusive high school work-based learning settings. While these are positive results, more research needs to be done to support the outcomes in this study. School personnel require effective interventions for students with severe disabilities that focus on building work task independence and encouraging social interactions with same-age peers that can be easily created or applied to integrated school settings. These interventions are vital for students with severe disabilities to learn pivotal skills that can assist in securing and maintaining post-school employment and peers are a natural part of the school setting that can help with building these skills. In conclusion, findings from this study reveal that peer supports may be an effective means for students with severe disabilities and the peers supporting them to learn employment skills needed for post-school success.

IV. PRACTITIONER PAPER

Embedding Social Skills into Vocational Activities with Peers: The High School Work Setting

Ms. Esposito is a special educator at Willow High School teaching students with severe disabilities in a low-incidence special education program. She has strongly advocated for the inclusion of her students in all aspects of school life. At her request, the high school has situated her classroom in the sophomore hallway to be near same-aged peers without disabilities and has included some of her students in general education classes. Ms. Esposito is concerned about the inclusion of her students in employment settings after they graduate from high school. In the past Ms. Fugarino, the school principal, has been open to Ms. Esposito's ideas and suggestions to improve the quality of schooling for her students with severe disabilities. Ms. Esposito recently attended a local conference to learn more about implementing peer support in work-based high school settings. Ms. Esposito feels pairing her students with general education students to participate in work-based activities around the school may have a positive effect on both the students with and without severe disabilities. Additionally, this may be another way to show that school-based work instruction, collaboration, and access to typically developing peers could help build vocational and social skills of her students for future employment.

Post-school employment requires the knowledge of basic vocational skills and social skills along with the ability to utilize these skills appropriately with coworkers to maintain a positive work environment (Agran, Hughes, Thoma, & Scott, 2016).   Unfortunately, students with severe disabilities (SwSD) may exit high school without these skills fully developed or able to generalize the skills to novel employment settings (Agran et al., 2016).   Moreover, special educators have grappled with how to teach vocational and social skills during school and continue to keep students in inclusive settings (Bobroff & Sax, 2010).   This paper describes how

to create a peer support program within an inclusive work-based learning setting to build vocational and social skills for SwSD and their peers.

Currently, once a SwSD turns 18 years old, employment skills are generally taught during a high school transition program. Transition programs may use various methods of teaching but courses should involve building skills focused on post-school employment, postsecondary education, and independent living outcomes. In 1990, the Individuals with Disabilities Education Act (IDEA) mandated school personnel to target the improvement of post-school outcomes through the implementation of transition services and supports while SwSD were still in high school. In 2014, the Workforce Innovation and Opportunity Act (WIOA) was signed into law to promote the education, training, and vocational skill development for youth, including those with severe disabilities, in integrated settings. Even with the federal push to improve transition outcomes for SwSD, minimal research has been conducted on the use of peer support interventions to build employability skills (i.e., vocational and social skills) that personnel can easily implement at school or in the community (Gilson, Carter, & Biggs, 2017). Thus, school personnel (e.g., special educators, transition specialists, related service personnel, vocational coordinators) require effective interventions that improve employability skills for SwSD in inclusive school settings.

A recent literature review conducted by Gilson and colleagues (2017) identified two studies that utilized peer instruction techniques to teach employment skills to SwSD in work-based settings in school. However, in the studies students with disabilities worked together to learn employability skills as opposed to including peers without disabilities. In 2016, Schaefer, Cannella-Malone, and Carter conducted a literature review examining the role of peers in peer-mediated interventions for students with intellectual disabilities. The authors found no studies

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that focused on building vocational skills for either peers with and without disabilities in school settings. Yet, several studies have demonstrated positive outcomes of vocational or social skills for SwSD working with peers without disabilities in employment settings outside of school (e.g., Breen, Haring, Pitts-Conway, & Gaylord-Ross, 1985; Storey & Garff, 1999; Westerland, Granucci, Gamache, & Clark, 2006). In these studies, SwSD demonstrated improved vocational skills (e.g., Westerlund et al., 2006) or social skills (e.g., Breen et al., 1985; Storey & Garff, 1999) when utilizing peer support interventions in an employment setting (e.g., restaurant, cosmetology vocational program). While these studies were not necessarily conducted in a work-based learning setting in school, the participants were transition-aged students with severe disabilities in high school transition programs. Findings from these studies support how peers without disabilities may be a natural link in school to provide SwSD opportunities to learn work skills and interact appropriately with future colleagues in employment settings. Therefore, school personnel without access to outside employment settings could provide inclusive employability skills training for SwSD in a work-based learning setting within school.

Research has demonstrated that SwSD can learn employability skills, however, these students may require direct skill instruction and opportunities to practice. The goal is for SwSD to be able to generalize these learned skills to new work tasks in novel settings and with new peers. Students with severe disabilities struggle with the different aspects of social interactions (e.g., initiating, maintaining, ending conversations) in various environments (Carter & Hughes, 2005). These social issues could pose a problem interacting and collaborating with coworkers when SwSD attempt to secure or maintain employment post-school. One way to address this matter is to equip students with and peers without severe disabilities with the skills necessary to work alongside coworkers with a range of abilities in employment settings during high school.

By offering all students the opportunities to work, learn, and socialize with each other in a variety of work-based learning settings, school personnel can build essential employability skills of both students with *and* students without severe disabilities for a successful post-school career.

Implementing Peer Supports in Work-Based Learning Settings

Ms. Esposito presented a plan to Ms. Fugarino to implement a peer supports program to build employability skills for her students, Johnny and Cindy, as they work in a work-based learning setting within the school. She proposed to recruit several peers without disabilities to participate during a free period with Johnny and Cindy on tasks specific to the work-based activities. Training for the peers would be conducted by Ms. Esposito or her paraprofessional, Mr. Williams. Ms. Fugarino felt this was a great way to pilot the inclusion of students with severe disabilities to learn employability skills with peers without disabilities in a work-based learning setting. Ms. Esposito believes the results from this pilot could open access for her students to practice the employability skills in authentic work settings off-campus.

Developing a peer support program involves agreement among school administrators and personnel to ensure that: (a) SwSD have the opportunities to engage with peers without disabilities in inclusive work-based activities, and (b) staff embed the program into the general education curriculum. An effective peer supports program can produce positive results when school personnel collaborate to provide opportunities for all students to build skills useful in post-school employment. Implementing a peer support program to address employability skills for all students, with and without disabilities, involves five steps:

- Interviewing school staff for possible work activities and identifying sites that align with the students' tangible interests and future employment goals
- Recruiting peers without disabilities and pairing students in dyads

- Training and practicing the peer support activities with the special educator, peer, and student with severe disability in the work-based learning setting

- Collecting data to monitor progress on skills

- Once the job skills are mastered, having the student with severe disabilities work on generalizing the learned skills into novel settings and peers

Interviewing school staff.   Initially when setting up a peer supports program, it is important to interview a variety of school staff about possible work-based activities in their department that can be completed daily or weekly by the students. There exist innumerable opportunities in schools for authentic vocational opportunities and school personnel may only need to look around the school to see what students without disabilities are asked to do. The special educator can identify teachers or staff within the school and set up a time to discuss the possible work-based activities for the students to complete. Examples of staff members may include physical education teachers, computer or technology teachers, librarians, custodians, office assistants, vocational teachers, related service personnel, or cafeteria staff. The special educator and staff member need to meet to discuss the different tasks required for the work-based activity, develop a task analysis for the steps required to complete the work tasks, and discuss how many times a week the work needs to be done. Once the special educator has interviewed the staff members and collected the work activities information, a comprehensive resource map should be created to provide a central list of the different job opportunities available for the students to choose from that align with their future employment goals. By collecting the work resources available to students in the school and creating a resource map, the special educator will have information on various settings, work tasks, and staff members to assist in building an assortment of employability skills. Therefore, both students with and

without severe disabilities can choose the jobs they want to work on together, which provides a more natural experience similar to applying for jobs in the community.

Ms. Esposito identifies several staff members in her school who could possibly create or have work-based activities for students to engage in collaboratively. She emails the main school office administrative assistant, the head librarian, and the bookstore manager asking if they have work-based opportunities that students can assist in completing. All three staff members reply they have various work tasks in their department and Ms. Esposito sets up a time to interview each staff member to discuss the details. After talking with the staff members, Ms. Esposito creates a spreadsheet to map out the different work-based learning settings and the work tasks included in each setting, the school periods the students can work in that setting, and the number of times a week the students would need to complete the work tasks. She knows that Johnny has expressed an interest in learning more about being an office assistant and Cindy wants to work as a paralegal in a law firm. Knowing these future goals of Johnny and Cindy, Ms. Esposito discusses her plan of a peer support program with Johnny and Cindy's parents. Their parents are ecstatic that the students will be engaging in activities that could prepare them for post-school employment and give permission for Johnny and Cindy to participate. After receiving parent permission, Ms. Esposito talks with Johnny and Cindy separately to describe the peer supports program and what they would be doing with the peers. Both students are excited to have the chance to work and each give their assent to be part of the project. Ms. Esposito, Mr. Williams, and Mr. Colleran, the main school office administrative assistant, collectively (1) outline the different work-based activities that Johnny, Cindy, and their peers can work on in the office (e.g., distribute mail into staff mailboxes, deliver early release passes to students, collect the recycling and bring to the basement, collecting items to copy for teachers and make copies),

(2) develop a task analysis for each work-based activity, and (3) create a work schedule for the jobs to be completed weekly.

Recruiting peers without disabilities. While in school, same-aged peers without disabilities can serve as a natural support to collaboratively work and socialize with SwSD. There are several ways to recruit peers without disabilities including a plug in the daily announcements, an advertisement in the school newspaper, flyers distributed in homerooms, or a story on the school website. Offering service learning credit or a peer mentoring class for high school credit may open doors for students who would not normally participate. Specific criteria that peers need to meet to be included should involve attending school regularly, ready to work with students with severe disabilities, and a free period they could dedicate to participating as a peer support. Also, peers do not need to have prior experience working with individuals with disabilities. Once the peers have volunteered to be a peer support, the special educator needs to interview the peers individually about future work goals and their own current employability skills. By using the information from the interview, the special educator can pair the peer partners together and identify the work-based activity that they will be working on collaboratively for the peer support time.

Ms. Esposito distributes flyers to a variety of teachers in the school, submits a blurb to be read during the morning announcements, and puts an ad on the school website to recruit students without disabilities to be a peer support. She mentions in the description of the activity that she cannot provide school credit for helping but has permission to approve service learning credits, which each student needs to graduate. Two students, Adeline and Xander, contact Ms. Esposito about being a peer support. She interviews each of them and asks about their own future career interests, any prior experience working with individuals with disabilities, and free

periods during the school day. Adeline, has an interest in going to college to work for a marketing firm, and Xander, wants to work in a veterinarian's office after he graduates high school. After interviewing each student, Ms. Esposito sets up a date with each peer to begin the training on the peer support strategies to use in the work-based activities in the main school office with Johnny and Cindy.

Peer support training.   Peer support training sessions can look different depending on the work-based learning setting but generally these sessions should be hands-on and involve the student with severe disabilities and the peer. One of the initial training sessions should include a discussion on severe disabilities, research-based strategies that may help SwSD learn employability skills, and additional information specifically regarding the SwSD the peer will work with (e.g., social education goals, accommodations or modifications, helpful learning tools utilized by the SwSD). Training sessions should take place in the work-based learning setting so both the SwSD and the peer can get a practical feel for the space and activities. These training sessions are a chance for the special educator to work with both the SwSD and the peer on how to implement the peer support strategies to build vocational and social skills and to answer questions that either student has about the work-based activity or peer support strategies. Research reveals that peers learn the strategies quickly and may only need two to three training sessions before moving on to implementing the strategies without adult assistance (Carter, Cushing Clark, & Kennedy, 2005). However, the special educator will need to discuss with the peer if s/he feels ready to work without the constant one-on-one support.

Peer support strategies. Three effective research-based strategies to use when working with SwSD involve: (a) modeling, (b) prompting, and (c) scaffolding. Modeling is setting an example that the SwSD can imitate to participate in the work tasks and engage in social

interactions (e.g., asking questions, making comments, requesting help) with others. Examples of modeling during a work-based activity may be that the peer shows how to search for the teacher's last name on the mailbox when delivering mail, demonstrates how to ask a question about the weekend, or models how to request help from others. Another strategy involves prompting, which uses verbal, gestural, or hand-over-hand guidance to engage in the work task or social interaction. A gestural prompt may be the peer pointing to the copy machine "start" button to remind the SwSD to press it to begin copying the papers. Another prompt may be the peer asking the SwSD to ask them a question about a topic. A third peer support strategy is scaffolding. Scaffolding is an instructional strategy used to break down learning into manageable chunks and providing hands-on materials that afford support to reach independence for the SwSD in the work-based activity. For example, the special educator could break down the steps on how to collect recycling from each classroom and display each step as a picture on an index card that the SwSD can follow. Another example would involve the special educator divvying up the department offices into groups based on the office locations within the school. Then, each set of students can have a different group to go and take the coffee orders instead of everyone asking the same staff members. A written list of each department office within the group can be distributed to the students and they can check off each of the offices after they took their orders. In addition to the peer support strategies, goals for the students to address while on the job should also be included on the worksheet. Therefore, the special educator can identify the strategies that work for the SwSD and discuss these strategies with the peers. Real-life examples need to be discussed with the peer as well as including examples on the worksheet. An example of a peer support strategies form that can be used in the training sessions is presented in Figure 4.1.

Peer Support Strategies
Strategies to use while working with your partner!

MODELING

- Show your partner how to do the task, ask questions, and make comments
- ❖ Your partner has difficulty with work tasks, asking or answering questions, and making comments. S/He may need you to model it.
  - EX: model how to greet staff, grab the bin, dump into the cart, & say thank you
  - EX: model how to ask or answer questions about a topic not related to work

PROMPTING

- Giving a verbal, gestural, or hand guidance to finish the task or engage in social activities
- ❖ Your partner has difficulty completing work tasks or socializing consistently. S/He may need you to give her/him a cue to do the task or engage socially.
  - EX: point to the room number and tell her/him to knock and greet the staff
    EX: give them a verbal prompt to ask you a question about the work or social activity

SCAFFOLDING

- Giving temporary support to reach independence
- ❖ Your partner will need verbal and visual support to help do the task independently.
  - EX: go over the rooms you will gather the recycling for before heading out
  - EX: have your partner check off the rooms you collect the recycling

WORK TASKS

- ❖ Your partner needs to complete work tasks independently. This means s/he needs to try the task first and not rely on looking at you for confirmation.
- ❖ Try:
  1. Prep your partner on the next couple of tasks s/he needs to complete by going over the list of rooms to visit. When s/he is completing the work, do something else (e.g., stand by the cart or head to another room) so s/he doesn't use you to confirm her/his work until it is done. Watch her/him and if s/he needs a prompt to continue, say her/his name & point to the room/sheet.
  2. Ask her/him questions about the work s/he is doing or have completed (e.g., what room did we just visit, where do we need to go next?)
  3. Redirect verbally or gesturally when s/he asks repetitive questions.

SOCIALIZING

- ❖ Your partner needs to work on initiating, engaging, and ending conversations with peers. This means s/he needs to work on starting, maintaining, and knowing how to end conversations.
- ❖ Try:
  - Ask your partner questions while walking in the hallways or completing work tasks. Learn about topics that interest her/him. Be sure s/he is paying attention before continuing.
  - Wait for her/him to process the information and respond. You can make a comment or ask further. Provide praise when s/he engages with you!
  - Give her/him verbal, visual, or gestural cues to engage others around her/him with questions or statements.

CHECKLIST:

WHILE WORKING, DID YOU?:

- ☐ Work alongside of your partner when needed?

- ☐ Make sure s/he had all materials needed to complete her/his job?

- ☐ Restate directions verbally (and with a gesture if needed) if s/he did not follow through?

- ☐ Ask questions/make statements about the work task s/he completed?

- ☐ Ask social questions/make comments about her/his and your interests?

- ☐ Make sure the work was done in a timely manner?

- ☐ Provide your partner with verbal and non-verbal praise (e.g., high fives, smiles)?

REMEMBER:

- ❖ It is important to not do everything for your partner but support her/him in the activities to become more independent in work and learn how to socialize with friends!

- ❖ HAVE FUN! ☺

Information adapted from Carter, Cushing, & Kennedy (2009)

Figure 4.1: Peer support strategies work sheet example

After getting parent permission and student assent from Xander and Adeline, Ms. Esposito and Mr. Williams together meet with each of them individually in Ms. Esposito's classroom during lunch to discuss the peer support strategies for working in the main school office. Ms. Esposito and Mr. Williams describe Johnny and Cindy's skills and different strategies that could be useful when working in work-based activity. To help Johnny work independently, Ms. Esposito writes out the list of work tasks needed for the work to be completed and describes it to Xander. She also creates a visual script of the steps for Cindy to initiate social interactions with others in the work place and demonstrates for Adeline how to use it when supporting Cindy. On three separate dates, Ms. Esposito, Johnny, and Xander work together in the main school office on the work tasks required to complete the job. Mr. Williams, Cindy, and Adeline also work together in the main office for the duration of the training sessions going over the peer support strategies and the tasks involved in the work-based activity. Feedback on implementing the strategies and answers to the peers' questions about the strategies or work is provided by Ms. Esposito and Mr. Williams. When these training sessions are done and the peers feel confident they can implement the peer support strategies successfully, Ms. Esposito sets up a consistent schedule for the peer partners to work weekly.

Collecting data to monitor progress. Collecting data is essential for special educators to demonstrate progress on their students' goals. By showing that their SwSD are making progress using peer supports, special educators can support the inclusion of SwSD into other settings to build skills required for transition. Goals for the students to work on can be derived from the individual education program (IEP) or created specifically for the SwSD to address during the work-based activity. Special educators should take data on several items during work-based activities. A few examples are: (a) the number of work tasks completed, (b) the

number of work tasks engaged in independency during the work session, (c) the types of prompts needed to complete the work, (d) the number of social interactions during work, (e) the topics of those social interactions, (f) the individual initiating the interactions or who the dyads are interacting with while working (e.g., other peers, teachers, staff), and (g) the quality of each of the social interactions (Figures 4.2 and 4.3).

Observer: Mr. Williams	Site: Main Office	Date: February 28, 2017
Target Student: Johnny		Target Peer: Xander

Goal: *Did Johnny complete the step in the work task independently?*
    + = Yes
    0 = No		

Work Task Step	Completed independently?	
1	+ 0	
2	+ 0	
3	+ 0	
4	+ 0	
5	+ 0	
6	+ 0	
7	+ 0	

Figure 4.2: Example data collection sheet for Johnny

Ms. Esposito wants data collected on the number of steps Johnny completes independently in each of the work tasks to monitor his progress on work task independence and the number of social interactions that Cindy initiates with her partner. Ms. Esposito creates a data collection sheet to record each of the independent steps in the work tasks (Johnny's) and who initiated the conversation (Cindy's). She or Mr. Williams observe the partners for three to

five sessions as the students work together and they record data on the data collection sheet.

Ms. Esposito teaches Mr. Colleran, the administrative assistant, how to monitor the students,

provide feedback to the partners, and collect data as they work in the office. Mr. Colleran

collects data once a week so Ms. Esposito can track Johnny and Cindy's progress. After Mr.

Colleran gives Ms. Esposito the data, she enters the data into a spreadsheet to create a graph

which can illustrate the progress Johnny and Cindy are making on their employability skills with

the implementation of peer supports.

Observer: Mr. Colleran	Site: Main Office	Date: March 17, 2017
Target Student: Cindy		Target Peer: Adeline

Goal: Did Cindy initiate the social interaction?
    + = Yes
    0 = No		

Social Interaction		Initiated independently?
1		+ 0
2		+ 0
3		+ 0
4		+ 0
5		+ 0
6		+ 0
7		+ 0

Figure 4.3: Example data collection sheet for Cindy

Novel settings and new peers. A primary goal of addressing employability skills with

peer supports is to improve the students with severe disabilities' ability to generalize these skills

into different settings and continue to be successful. Research has shown that peer supports is a

feasible and versatile intervention that can be applied to different settings with a variety of peers (Carter, Cushing, Clark, and Kennedy, 2005; Carter et al., 2016). Once the SwSD has achieved the goals created for one work-based learning setting, he or she should move to a new work-based learning experience (e.g., different work setting but same peer, same work setting but different peer). Therefore, switching the settings and peers the SwSD needs to work with may enhance generalization of the learned employability skills to different work-based learning settings. This change may provide all students a chance to sharpen their skills, improve their ability to generalize what they have learned, and identify jobs or tasks they like or would not like to do in potential future employment environments.

After several weeks, Johnny meets his goal of completing all his work tasks in the main office independently while working with Xander. Johnny has told Ms. Esposito that he enjoys the work he is doing in the main office and would like to continue working in the office. Ms. Esposito talks to Mr. Colleran and he reports there are additional tasks that Johnny and Xander can work on. Ms. Esposito changes the list of work tasks Johnny and Xander need to complete each time they are in the main office and Mr. Colleran continues to take data on Johnny's work task independence. Like Johnny, Cindy has made excellent progress towards increasing her social initiations with her peer Adeline while working. She has expressed to Ms. Esposito that she likes working with Adeline but would like to work in another setting such as the library. Ms. Esposito talks with the head librarian, Mr. Dominguez, about the previous work tasks he sent her and if Cindy and Adeline can help with those tasks. Mr. Dominguez agrees to have the peer partners work in the library and to also assist with the monitoring, feedback, and taking data when the students are working. Ms. Esposito changes the list of work tasks for Cindy and Adeline to work on in the library and Mr. Dominquez begins to take data on Cindy's social

initiations during work. Overall, Ms. Esposito is excited to show the students' progress on their

employability skills using peer supports to Ms. Fugarino and their parents. She hopes these

positive results can lead to including more students with severe disabilities to work on

employability skills in inclusive work-based learning settings and possibly in authentic work

settings off-campus.

Conclusion

Current legislation mandates school personnel to prepare students with severe disabilities

with employment skills in inclusive environments while in high school to improve transition

outcomes. While adding classes or periods is not an option for most schools, providing an

inclusive work-based learning setting for students with severe disabilities and peers to work

together may be a possibility. The special educator, paraprofessionals, administration, and

school staff can collaborate to create opportunities developing the employability skills of

students with severe disabilities in school classrooms, offices, and non-academic spaces. Thus,

creating meaningful and inclusive work-based learning settings to build skills necessary for a

positive post-school employment experience of students with severe disabilities.

V. RESEARCH STATEMENT

This dissertation is comprised of five chapters. Chapter 1 establishes the rationale and argument supporting the need to study the effects of peer supports on vocational and social skills for students with severe disabilities in high school work-based learning settings. Chapter 2 depicts a comprehensive, systematic literature review of the existing research on the impact of peer-mediated interventions on vocational or social skills of transition-aged students with severe disabilities in integrated employment settings. Chapter 3 describes a single-case research design study that evaluated the impact of peer supports on the independent engagement of work tasks and social interactions of students with and without severe disabilities in an inclusive work-based learning setting in a high school. Chapter 4 presents a paper aimed at practitioners that describes how to address employability skills for students with severe disabilities by describing how to design and implement a peer supports program in a high school work-based learning setting. The final chapter of this dissertation that is described below presents my career path, research agenda, and future career goals.

Career Path

Professional Experience

I never imagined returning to school to earn my doctorate. I started my career as a speech-language pathologist 14 years ago working in a small, non-profit rehabilitation center in the suburbs of Chicago. Several years later, I needed a change and obtained a position as a SLP in Chicago Public Schools (CPS). While CPS was chaotic, I fell in love working with students on speech and language skills, engaging with professionals to promote inclusive classrooms, and collaborating with families to build stronger school-to-home relationships. Through the years, I developed a commitment to improving the quality of life for students with autism spectrum

disorders and intellectual disabilities. I prioritized learning the language needs of each of my

students in order to provide them with high quality therapy services and education. As I gained

more experience and knowledge about best practices, interventions, and post-school

opportunities for my students, the dismal realization that there were few attainable, feasible, and

affordable post-school options became glaringly apparent. I questioned whether I was teaching

my students the language skills and social skills they required to be successfully employed once

they graduated. I also wondered if my students or their families had access or opportunities to

improve their social language with typical peers in inclusive environments. Finally, I speculated

whether my students were enjoying their lives and engaging in activities that made them happy

post-high school. It became clear to me, through my own experience working with students and

substantiated by current research, that students with severe disabilities (SwSD) required intensive

training in high school to address vocational, language, and social skills to ascertain their own

hopes and dreams. The questions and concerns about my students' post-school outcomes

combined with my passion to prepare my students for the best possible transition outcomes led

me to earn my doctorate in special education.

Doctoral Studies

While I was in the doctoral program, I was the project coordinator of an Office of Special

Education Programs (OSEP) funded grant preparing special educators to become transition

specialists. Because of this position and along with my passion to improve the quality of life for

SwSD, I was drawn to intervention research focusing on transition outcomes, specifically peer-

mediated interventions (PMI). For my research project, I conducted a pilot study examining the

effects of peer supports on independent engagement in work tasks and social interactions of

students with and peers without severe disabilities in a high school work-based activity. My

dissertation replicated this pilot study but in a different work-based learning setting while adding

generalization probes to extend the minimal research about peer supports in integrated

employment settings. In addition to my own research, I am collaborating on several projects

with UIC faculty members, such as a literature review on transition research, a meta-analysis

about transition interventions, and research using community conversations as a data collection

tool. These opportunities, along with my experience as a speech-language pathologist, have

provided me with a clear line of research to pursue after I graduate.

Future Research Goals

　　After earning my doctorate, my future research goals include continuing to explore the

impact of PMI on the vocational skills and social interactions of SwSD in authentic, integrated

employment settings and expanding this research to assess how implementing PMI can

effectively prepare SwSD still in high school for employment, postsecondary education, and

independent living transition outcomes. I plan to pursue these goals through studying the

application of peer supports in varied employment and school-based settings; interviewing

stakeholders (e.g., families, employers, special educators, transition specialists, agencies, peers)

involved in the PMI intervention to identify issues related to the implementation feasibility,

fidelity, and social validity of peer supports; and survey stakeholders about the employability

skills that are utilized and are necessary to be successful in employment settings. Afterwards, I

plan to disseminate the findings of my research by publishing in peer-reviewed journals along

with presenting at regional, national, and international conferences. Furthermore, I intend to

conduct professional development for school and community personnel, to enable stakeholders

to implement peer supports in their own settings and begin to bridge the research to practice gap.

Research Agenda

As stated previously, my dissertation and subsequent research agenda is grounded in my career as a speech-language pathologist in CPS. Students with severe disabilities continue to face low expectations and limited interventions that hinder post-school success. Also, these students remain segregated from their peers in educational settings, which hampers their development of vocational and employability skills and limits opportunities for SwSD to build and maintain peer friendships. My research has led me to realize the importance of teaching vocational and employability skills to SwSD in authentic settings before they graduate from high school. This understanding has shaped my research interests to focus on inclusive interventions that build employability skills in inclusive work-based or employment settings to strengthen the transition to adulthood. Therefore, my research agenda centers on two main areas: peer-mediated interventions and post-school outcomes (e.g., employment) for students with severe disabilities and their peers without disabilities.

Peer-Mediated Interventions

One of my career goals includes continuing to research the effects of PMI on the employability skills of SwSD in inclusive work-based learning (WBL) settings. While research on PMI has demonstrated to be effective in academic and non-academic classrooms for both students with and without disabilities, few studies have evaluated the effects of these interventions on vocational and employability skills in integrated employment or WBL settings. Coupled with research on PMI in WBL settings, I want to extend this line of research to include evaluating the efficacy of PMI in employment settings when students are still in high school. In addition to examining the effects of PMI for SwSD, I plan to assess the effects on the employability skills of the peers that serve as supports. Currently, there is minimal research pertaining to the peers' perspectives of serving as peer supports, participating in PMI, and how

the intervention affects their own employability skills. I am also interested in exploring how the roles of special educators, paraprofessionals, and job coaches evolve with the implementation of peer supports. By conducting interviews about their perceptions on their roles before, during, and after PMI implementation, will potentially allow for a rich, descriptive understanding of participant perceptions on their roles and expectations, the social validity of the intervention, and feasibility of executing PMI in school settings. Understanding how PMI affects the participants as well as the employability skills of the students is an important step towards developing interventions that can be executed in practice. What remains to be determined is how to use PMI authentically in high schools to create more natural WBL settings that are not contrived and then how PMI can be utilized in natural settings such as integrated work and community environments for high school students.

In addition to examining the effects of PMI on employability skills, I want to explore if PMI assists in developing natural, long-lasting friendships between SwSD and their peers while in school and the work place. Potential research will focus on identifying skills necessary to support friendship development and the factors that attribute to life-long friendships in inclusive environments, including school and employment settings. To identify these skills, I will conduct a qualitative study that includes interviewing students with severe disabilities, families, school personnel, and peers without disabilities about what skills and factors they deem important and necessary when starting and maintaining friendships. By analyzing the qualitative data from these interviews, I will explore the themes and ideas about factors that could possibly help in creating long-lasting friendships in school or work.

Post-School Employment Outcomes

Another goal on my research agenda focuses on post-school outcomes, specifically employment outcomes. Test and colleagues (2009) identified CTE and vocational education (VocEd) as having a moderate effect on transition outcomes for SwSD. I want to explore the potential effects of embedding PMI into integrated career and technical education (CTE) or VocEd programs on the employability skills of SwSD and their peers. Also, I am interested in the perceptions of students, families, school personnel, and employers about this implementation of PMI into CTE or VocEd programs and what potential employability skills these stakeholders suggest need to be addressed in the curriculum. To do this, I plan on surveying students, families, school personnel, and employers to identify the employability skills necessary to acquire successful post-school employment and the techniques these skills can be taught in a CTE or VocEd program.

My future research in inclusive interventions and CTE/VocEd programs to promote positive post-school outcomes will require building relationships with schools, teachers, students, families, employers, and agencies to develop an understanding of their needs and goals for their communities. In addition to seeking grant support to fund community-based research that may enhance collaborations among stakeholders involved in the transition outcomes of SwSD, I am eager to pursue interdisciplinary research opportunities that will draw on a wide variety of expertise to examine these issues. Thus, by collaborating with a range of stakeholders involved in improving the quality of adult life for SwSD, we can begin to move towards more equal and inclusive opportunities for diverse student populations in post-school employment.

Career Goals

The immediate next step in my academic career is becoming a Hegarty Fellow, a post-doctoral position focusing on the improvement of the quality of life for individuals with autism

spectrum disorders and intellectual disabilities, in the Department of Counseling, Educational Psychology, and Special Education at Michigan State University. This position was created to increase international collaboration for the advancement of quality of life research for individuals with autism spectrum disorder and intellectual disabilities. My time will be divided between research conducted in Michigan under the co-leadership of Drs. Connie Sung and Marisa Fisher and at the National University of Ireland – Galway with Dr. Geraldine Leader in the School of Psychology.

My time at Michigan State, will enable me to enact my research agenda and to continue to evaluate the effects of PMI on the employability skills for SwSD in high school WBL settings. In addition, I will begin to explore the special educators, paraprofessionals, and job coaches' perceptions on their evolving roles with PMI. Utilizing qualitative methods, I plan to interview school personnel for their insight on how their educational roles have changed due to PMI, their feelings about this change, and what this change means for the SwSD. Furthermore, I intend to create a survey for students, families, school personnel, and employers that can identify potential employability skills necessary to implement in high school curriculum for successful post-school employment. While in Ireland, I want to pilot PMI in a WBL or employment setting for youth with severe disabilities while in high school or a transition program. I also wish to conduct a comparison study investigating the similarities and differences of in-school training addressing employability skills for SwSD between the United States and Ireland. While these goals may be lofty, I will use this opportunity to increase my knowledge of research methodologies and methods and to build an international professional network for future collaborative research opportunities. This plan will provide me with a wide-array of research methods to answer

potential research questions with several possible paths to follow when I move into a tenure-track assistant professor position.

When the post-doctoral position is finished, I hope to secure a tenure-track assistant professor position at a diverse, urban university to pursue my research agenda on evaluating peer-mediated interventions and post-school employment outcomes for SwSD. As a faculty member, I will continue to shape my research goals by embedding the outcomes of research conducted in my post-doctorate to create new goals and lines of research. An ideal position would include teaching graduate level courses on inclusion, evidence-based interventions, transition, and severe disabilities.

Conclusion

During my academic career, I will continue to research PMI and post-school employment outcomes for SwSD in their communities to support successful transition outcomes. I plan on collaborating with invested stakeholders to examine the implementation of and perspectives about inclusive interventions for SwSD and their peers to potentially improve the employability skills necessary for post-school employment. Also, I mean to explore the potential impact of inclusive employment and relationships between SwSD and peers without disabilities in employment settings. I believe that this research together with the involvement of community members, school personnel, students, and families, will impact the inclusion of SwSD in future employment opportunities and friendships with their peers in their communities for a successful transition into adulthood.

APPENDICES

APPENDIX A: IRB APPROVAL LETTER

Approval Notice
Amendment to Research Protocol and/or Consent Document – Expedited Review
UIC Amendment # 3

January 17, 2017

Lindsay Athamanah, BA/MS

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RE: Protocol # 2015-0547
        "Peer Supports in the Employment Setting for Students with Significant Disabilities"

Dear Ms. Athamanah:

Members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research and/or consent form under expedited procedures for minor changes to previously approved research allowed by Federal regulations [45 CFR 46.110(b)(2) and/or 21 CFR 56.110(b)(2)]. The amendment to your research was determined to be acceptable and may now be implemented.

Please note that investigator training requirements expired for key research Cindy Collado on 12/11/2016, and she currently is not eligible to engage in research protocols submitted to the UIC Institutional Review Board (IRB). All investigators and key research personnel involved in human subjects research must complete a minimum of two hours of investigator training in human subjects protection every two years.

Please note the following information about your approved amendment:

Amendment Approval Date: January 12, 2017
Amendment:
    Summary: Amendment #3 (response to modifications), dated 12 December 2016, and submitted 22 December 2016 and accepted 3 January 2017 via OPRSLive, is an investigator-initiated amendment to:
(1) modify research protocol: a. remove teacher training and observations as part of the research; b. add a phone call or email with the parents to get permission if an in-person meeting cannot be arranged; c. remove the word "employer" and replacing it to "school personnel" because no jobs will be outside of the school environment; d. request an additional 5 students with significant disabilities, 5 students without significant disabilities, and an additional 5 teachers and 5 school personnel to participate in the study. An additional 20 participants to the 20 already approved for a total of 40 participants in the study; e. modify

the inclusion criteria for students with significant disabilities and for students without significant disabilities; and f. update the data collection length from 2-3 months to 4 months (Initial Review application, v4, 12/22/2016; Research Protocol v.5 12/22/2016);
(2) add one site location: UIC will continue to be the lead performance site ███████████ ██████████████████████ will be a non-UIC research site. Participants will be recruited from █████████████████████████ including teachers, school personnel, students without disabilities, and students with significant disabilities. The peer support intervention during work-based activities will be implemented at ██████████████████████ █████████████████████████████. A letter of support from the ███████████ █████████████████████████████████████ is included in this amendment. (Appendix K; letter of support 12/22/2016);
(3) modify Social Validity Survey: a. include additional questions; b. change the "Employer Social Validity Survey" to "School Personnel Social Validity Survey" because no jobs will be outside of the school environment (Peer Support Peer Survey, v.2, 12/12/16; Peer Support Teacher Survey, v.2, 12/12/16; Peer Support SWSD Interview Protocol, v.3 12/12/16; Peer Support School Personnel Survey, v.2, 12/12/16); and
(4) submit revised consents/assents: a. Update Parent SWOD, Parent SWSD, and Teacher consent with additional information about the study; b. change the "Employer Consent" to "School Personnel Consent" because no jobs will be outside of the school environment (Peer Supports Email Phone Call Script Parent Permission, v1, 12/22/2016; Peer Support Special Education Flyer, v3, 12/22/2016; Peer Support Student Flyer, v3, 12/22/2016; Peer Support Teacher Flyer, v3, 12/22/2016; Peer Support Parent SWSD Permission, v.4 12/12/16; Peer Support Parent SWOD Permission, v.4, 12/12/16; ; Peer Support School Personnel Consent, v.4, 12/12/16; Peer Support SWOD Assent, v.3 12/12/16; Peer Support SWSD Assent, v.3, 12/12/16; Peer Support Teacher Consent, v.4, 12/12/16).

Approved Subject Enrollment #:   40
Performance Sites: ████████████████████████████
████████████████████████████████

Sponsor: None
Research Protocol(s):
  a) Peer Supports in the Employment Setting for Students with Significant Disabilities; Version 5; 12/22/2016
Recruiting Material(s):
  a) Student Flyer; Version 3, 12/12/2016
  b) Email Phone Call Script Parent Permission; Version 1, 12/22/2016
  c) Teachers Flyer; Version 3, 12/22/2016
  d) Special Education Flyer; Version 3, 12/22/2016
Informed Consent(s):
  a) Teacher Consent; Version 4, 12/12/2016
  b) School Personnel Consent; Version 4, 12/12/2016
Assent(s):
  a) SWSD Assent; Version 3, 12/12/2016
  b) SWOD Assent; Version 3, 12/12/2016

Parental Permission(s):
  a) Parent SWOD Permission; Version 4, 12/12/2016

b) Parent SWSD Permission; Version 4, 12/12/2016

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
12/12/2016	Amendment	Expedited	12/17/2016	Modifications Required
01/03/2017	Response To Modifications	Expedited	01/12/2017	Approved

Please be sure to:

→ Use only the IRB-approved and stamped consent document(s) and/or HIPAA Authorization form(s) enclosed with this letter when enrolling subjects.

→ Use your research protocol number (2015-0547) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the guidance:
   "UIC Investigator Responsibilities, Protection of Human Research Subjects"
      (*http://research.uic.edu/irb/investigators-research-staff/investigator-responsibilities*)

Please note that the UIC IRB #2 has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

                              Sincerely,

                              Allison A. Brown, PhD
                              IRB Coordinator, IRB # 2
                              Office for the Protection of Research Subjects

Enclosure(s): None

Please note that stamped and approved *.pdf files of all recruitment and consent documents will be forwarded as an attachment to a separate email. OPRS/IRB no longer issues paper letters and stamped/approved documents, so it will be necessary to retain these emailed documents for your files for auditing purposes.

1. Informed Consent Document(s):
   a) Teacher Consent; Version 4, 12/12/2016
   b) School Personnel Consent; Version 4, 12/12/2016
2. Assent Document(s):
   a) SWSD Assent; Version 3, 12/12/2016
   b) SWOD Assent; Version 3, 12/12/2016
3. Parental Permission(s):
   a) Parent SWOD Permission; Version 4, 12/12/2016
   b) Parent SWSD Permission; Version 4, 12/12/2016
4. Recruiting Material(s):
   a) Student Flyer; Version 3, 12/12/2016
   b) Email Phone Call Script Parent Permission; Version 1, 12/22/2016
   c) Teachers Flyer; Version 3, 12/22/2016
   d) Special Education Flyer; Version 3, 12/22/2016

cc: Lisa Cushing (Faculty Advisor), Special Education, M/C 147
       Norma Lopez-Renya, Special Education, M/C 147

APPENDIX B: PARENT PERMISSION FORM – SIGNIFICANT DISABILITIES

University of Illinois at Chicago
Research Information and Consent for Participation in Social Behavioral Research

Using Peer Supports in Work Based Settings for Students with Significant Disabilities
Parent Permission Form – Significant Disabilities

You are being asked to give permission for your child to participate in a research study. Researchers are required to provide a permission form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researcher any questions you may have.

Principal Investigator Name and Title: Lindsay S. Athamanah, doctoral candidate
Faculty Sponsor Name and Title: Lisa Cushing, Ph.D., Associate Professor, Special Education
Department and Institution: Special Education Department, University of Illinois at Chicago
Address and Contact Information:
Phone: Email

Why am I being asked?
As a parent of a child with significant disabilities, you are being asked to give permission for your child to participate in a research study about how peer supports affect the employability and social skills of students with and without significant disabilities in a work-based setting. Your child is being asked to participate in this research study because you indicated that you are a parent of a child with a significant disability (ages 14-18) and that your child may be eligible to take part. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

Yours and your child's participation in this research is voluntary. Your decision whether or not to have your child participate will not affect your or your child's current or future dealings with the University of Illinois at Chicago and/or your child's school. If you decide for your child to participate, you or your child are free to withdraw at any time without affecting these relationships.

Five high school students with significant disabilities, five high school students without disabilities, up to five special education teachers, and up to five school personnel will be recruited for this study.

What is the purpose of this research?
The researcher hopes to determine if a peer support intervention implemented in a work based setting will be effective in building the employability and social skills of high school students with and without

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significant disabilities. Peer supports are strategies implemented with adult monitoring by students without disabilities to students with disabilities to improve academic and social skills (Carter & Kennedy, 2006). Peer supports have shown to improve academic and social skills in students with and without disabilities in the general education setting (Carter, Sisco, Melekoglu, & Kurkowski, 2007). This may provide policy-makers, administrators, and educators a more natural technique to apply in authentic settings when working with students with significant disabilities in employment.

What procedures are involved?
This research will be completed at a work-based setting agreed upon by the special educator, school personnel, and students. In addition to the recruitment phase, there are three more phases to the study: the Observation Phase, the Training Phase, and the Intervention Phase. Your child will only be required to participate in the Observation Phase and the Intervention Phase.

The observation phase will require the researcher to observe the students with significant disabilities in the work place for three to six times. Each day's session will not be more than 60 minutes long. The total time the students will participate in this phase will be no more than three to six hours. The intervention phase will require the students with and without disabilities to implement the peer support interventions in the employment setting for six to eight sessions. During this time, the researcher will observe the pair of students to document the interventions being used. Each day's session will not be more than 60 minutes long. The total time the students will participate in this phase will be no more than six to eight hours. After two to three weeks, the researcher will return to observe the pairs again to see if the interventions are being maintained in the work-based setting.

The following describes more specifically what your child will be asked to do (total time = 10 to 15 hours):
- *Observations*: your child will be observed while working in a work based setting with his or her peers. At this time, the researcher will be observing the employability and social skills your child has and uses at his/her job. No direct contact will be made with your child at this time. The researcher will observe your child for three to six 1-hour sessions in one week.
- *Interventions:* the researcher will observe the peer partners (i.e., one student with significant disabilities and one student without disabilities) as the peer support strategies are implemented in the work setting. The peer support strategies are evidence-based practices used by special educators when working with students with disabilities. Your special education teacher may use many of them. The researcher will provide support for the peer partners as needed. After two to three weeks, the researcher will return to observe the pairs again to see if the interventions are being maintained in the work-based setting.
- *Social Validity Survey*: at the conclusion of the study, the researcher will ask that your child participate in an interview addressing topics such as progress made by students, evaluation of the training sessions, and feasibility of the intervention.

What are the potential risks and discomforts?
There may be risks from the study that are not known at this time. To the best of my knowledge, the things your child will be doing have no more risk of harm than he/she would experience in his/her day-to-day activities. Regardless, there is the risk that your child may experience the following:
- During the observations, your child may feel uncomfortable with the researcher observing.
- There is the risk that a breach of privacy (others will know the subject is participating in research) and confidentiality (accidental disclosure of identifiable data) may occur. All data is confidential and no identifying data will be shared with others.

Even if you sign this consent form, your child may withdraw from the study at any time, without consequence.

Are there benefits to taking part in the research?
Your child may not directly benefit from participating in this study but he/she may improve his/her employability and social skills, expand social interactions with others, and possibly develop self-determination in the work based setting. The study results may be used to help other special educators by providing an evidence-based practice to use in their transition programs. The results may be used in the future such as for providing effective practices that could be used to inform policy decisions.

What other options are there?
You and your child have the option to not participate in this study. You do not have to sign this form. Taking part in this study is entirely voluntary. You or your child is free to withdraw at any time. If you decide not to have your child take part, it will not affect your relationship with the researcher, the University of Illinois at Chicago and/or your child's school.

What about privacy and confidentiality?
Information about your child will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare (for example, when the UIC Office for the Protection of Research Subjects monitors the research or consent process) or if required by law. The research team consists of doctoral student, Lindsay Athamanah, and her doctorial advisor, Dr. Lisa Cushing. Study information, which identifies you and your child and the consent form signed by you, will be looked at and/or copied for checking up on the research by UIC OPRS and State of Illinois Auditors. There may be a possibility that school personnel and students may know of your child's participation in this study.

Your answers will be confidential and all records of this study will remain private. At the start of the study, your child will be assigned a pseudonym and a case number in place of his/her name and classroom number. A list will be created of the participants with their assigned pseudonyms and case numbers; this list will be stored separate from the data in a locked file cabinet in the locked office at the University. All research documents will be kept in a locked file cabinet in a locked room at the University, accessible only by Lindsay Athamanah. Any digital files will be assigned a code and saved on a password protected laptop only used by the researcher. Data collected about your child and his/her information will remain confidential and will not be linked back to them; therefore, this information will not be used in any way by the principal to evaluate your child. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

What are the costs for participating in this research?
There are no costs to you for participating in this research.

Will I be paid for my participation in this research?
Following your child's participation in each phase of this study, your child will be compensated with $10.00 for a total of $30.00 to thank him/her for their time and commitment.

Can I withdraw or be removed from the study?
If you decide for your child to participate, you and your child are free to withdraw your permission and discontinue participation at any time. There are no consequences for withdrawing. You have the right to leave this study at any time without penalty.

Who should I contact if I have questions?
You may contact Lindsay Athamanah if you have any questions about this study or your part in it. Lindsay Athamanah can be reached by phone at ▓▓▓▓▓▓▓ or by email at ▓▓▓▓▓▓▓▓▓ You may also contact the faculty sponsor, Dr. Lisa Cushing by phone at ▓▓▓▓▓ ▓▓▓ or by email at ▓▓▓▓▓▓▓▓

What are my rights as a research subject?

If you feel you or your child have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Remember:

You and your child's participation in this research are voluntary. Your decision whether or not for your child to participate will not affect your current or future relations with the University and/or your child's school. If you decide for your child to participate, you are free to withdraw at any time without affecting these relationships.

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

Signature of Subject or Legally Authorized Representative

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I give permission for my child to participate in this research. I will be given a copy of this signed and dated form.

Printed Name of Child	Date

Signature of Parent/Guardian	Date

Printed Name of Parent/Guardian

APPENDIX C: PARENT PERMISSION FORM – NO DISABILITIES

University of Illinois at Chicago
Research Information and Consent for Participation in Social Behavioral Research

Using Peer Supports in Work Based Settings for Students with Significant Disabilities
Parent Permission Form – No Disabilities

You are being asked to give permission for your child to participate in a research study. Researchers are required to provide a permission form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researcher any questions you may have.

Principal Investigator Name and Title: Lindsay S. Athamanah, doctoral candidate
Faculty Sponsor Name and Title: Lisa Cushing, Ph.D., Associate Professor, Special Education
Department and Institution: Special Education Department, University of Illinois at Chicago
Address and Contact Information: ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
Phone: ▮▮▮▮▮▮▮ **Email:** ▮▮▮▮▮▮▮

Why am I being asked?
As a parent of a child without significant disabilities, you are being asked to give permission for your child to participate in a research study about how peer supports affect the employability and social skills of students with and without significant disabilities in a work-based setting. Your child is being asked to participate in this research study because you indicated that you are a parent of a child without a significant disability (ages 14 - 18) and that your child may be eligible to take part to be the peer partner of a student with a significant disability. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

Yours and your child's participation in this research is voluntary. Your decision whether or not to provide permission to participate will not affect your or your child's current or future dealings with the University of Illinois at Chicago and/or your child's school. If you decide for your child to participate, you or your child are free to withdraw at any time without affecting these relationships.

Five high school students with significant disabilities, five high school students without disabilities, up to five special education teachers, and up to five school personnel will be recruited for this study.

What is the purpose of this research?
The researcher hopes to determine if a peer support intervention implemented in a work based setting

will be effective in building the employability and social skills of high school students with and without significant disabilities. Peer supports are strategies implemented with adult monitoring by students without disabilities to students with disabilities to improve academic and social skills (Carter & Kennedy, 2006). Peer supports have shown to improve academic and social skills in students with and without disabilities in the general education setting (Carter, Sisco, Melekoglu, & Kurkowski, 2007). This may provide policy-makers, administrators, and educators a more natural technique to apply in authentic settings when working with students with significant disabilities in employment.

What procedures are involved?

This research will be completed at a work-based setting agreed upon by the special educator, school personnel, and students. In addition to the recruitment phase, there are three more phases to the study: the Observation Phase, the Training Phase, and the Intervention Phase. Your child will only be required to participate in the Training Phase and the Intervention Phase.

The training phase will require the students without disabilities (e.g., peer partner) to meet with the researcher for three to four times. Each day's session will not be more than 45 minutes long. The total time the peer partner will participate in this phase will be no more than three hours. The intervention phase will require the students with and without disabilities to implement the peer support interventions in the employment setting for six to eight sessions. During this time, the researcher will observe the pair of students to document the interventions being used. Each day's session will not be more than 60 minutes long. The total time the students will participate in this phase will be no more than six to eight hours. After two to three weeks, the researcher will return to observe the pairs again to see if the interventions are being maintained in the work- based setting.

The following describes more specifically what your child will be asked to do (total time = 10 to 12 hours):
- *Training:* your child will participate in three to four training sessions that will last no more than 45 minutes each over a one to two week period. During these sessions, the researcher and your child will discuss different peer support strategies that can be implemented on the job with the student with significant disabilities. The peer support strategies are evidence-based practices used by special educators when working with students with disabilities. Role playing and practicing of these strategies may be required.
- *Interventions:* the researcher will observe both of the students as the peer support strategies are implemented in the work setting. The researcher will provide support for the peer partners as needed. After two to three weeks, the researcher will return to observe the pairs again to see if the interventions are being maintained in the work-based setting.
- *Social Validity Survey*: at the conclusion of the study, the researcher will ask that your child fill out a social validity survey addressing topics such as progress made by the students, evaluation of the training sessions, and feasibility of the intervention.

What are the potential risks and discomforts?

There may be risks from the study that are not known at this time. To the best of my knowledge, the things your child will be doing have no more risk of harm than he/she would experience in his/her day-to-day activities. Regardless, there is the risk that your child may experience the following:
- During the observations, your child may feel uncomfortable with the researcher observing.
- There is the risk that a breach of privacy (others will know the subject is participating in research) and confidentiality (accidental disclosure of identifiable data) may occur. All data is confidential and no identifying data will be shared with others.

Even if you sign this consent form, your child may withdraw from the study at any time, without consequence.

Are there benefits to taking part in the research?
Your child may not directly benefit from participating in this study but he/she may improve his/her ability to work with people with disabilities in the work place, expand his/her work skills, and develop empathy toward people with disabilities. The study results may be used to help other special educators by providing an evidence-based practice to use in their transition programs. The results may be used in the future such as for providing effective practices that could be used to inform policy decisions.

What other options are there?
You and your child have the option to not participate in this study. You do not have to sign this form. Taking part in this study is entirely voluntary. You or your child is also free to withdraw at any time. If you decide for your child to not to take part, it will not affect your relationship with the researcher, the University of Illinois at Chicago and/or your child's school.

What about privacy and confidentiality?
Information about your child will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare (for example, when the UIC Office for the Protection of Research Subjects monitors the research or consent process) or if required by law. The research team consists of doctoral student, Lindsay Athamanah, and her doctoral advisor, Dr. Lisa Cushing. Study information, which identifies you and your child and the consent form signed by you, will be looked at and/or copied for checking up on the research by UIC OPRS and State of Illinois Auditors. There may be a possibility that school personnel and students may know of your child's participation in this study.

Your answers will be confidential and all records of this study will remain private. At the start of the study, your child will be assigned a pseudonym and a case number in place of his/her name and classroom number. A list will be created of the participants with their assigned pseudonyms and case numbers; this list will be stored separate from the data in a locked file cabinet in the locked office at the University. All research documents will be kept in a locked file cabinet in a locked room at the University, accessible only by Lindsay Athamanah. Any digital files will be assigned a code and saved on a password protected laptop only used by the researcher. Data collected about your child and his/her information will remain confidential and will not be linked back to them; therefore, this information will not be used in any way by the principal to evaluate your child. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

What are the costs for participating in this research?
There are no costs to you for participating in this research.

Will I be paid for my participation in this research?
Following your child's participation in each phase of this study, your child will be compensated with $10.00 for a total of $30.00 to thank him/her for their time and commitment.

Can I withdraw or be removed from the study?
If you decide for your child to participate, you and your child are free to withdraw your consent and discontinue participation at any time. There are no consequences for withdrawing. You have the right to leave this study at any time without penalty.

Who should I contact if I have questions?
You may contact Lindsay Athamanah if you have any questions about this study or your part in it. Lindsay Athamanah can be reached by phone at ▆▆▆▆▆▆ or by email at ▆▆▆▆▆▆▆▆. You may also contact the faculty sponsor, Dr. Lisa Cushing by phone at ▆▆▆▆ or by email at ▆▆▆▆▆▆▆

What are my rights as a research subject?

If you feel you or your child have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Remember:

Your child's participation in this research is voluntary. Your decision whether or not to have him/her participate will not affect your current or future relations with the University of Illinois at Chicago and/or your child's school. If you decide for your child to participate, you are free to withdraw him/her at any time without affecting these relationships.

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

Signature of Subject or Legally Authorized Representative

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I give permission for my child to participate in this research. I will be given a copy of this signed and dated form.

Printed Name of Child	Date

Signature of Person Obtaining Permission	Date

Printed Name of Person Obtaining Permission

APPENDIX D: STUDENT WITH SEVERE DISABILITIES ASSENT FORM

APPROVAL

STARTS   EXPIRES
01/12/2017 — 08/02/2017

UIC UNIVERSITY OF ILLINOIS AT CHICAGO
INSTITUTIONAL REVIEW BOARD

University of Illinois at Chicago
ASSENT TO PARTICIPATE IN RESEARCH
Using Peer Supports in Work Based Settings for Students with Significant Disabilities
My name is Lindsay Athamanah and I am a PhD candidate in special education at the University of Illinois at Chicago. This research study will have four phases and I will need the help of several students. All students will get to complete three out of four different phases: recruitment, observation, training, or intervention. Students with disabilities will participate in recruitment, observation, and intervention. I am asking you to take part in a research study because I am trying to learn more about peer help while working at a job.

Part 1: Recruitment
- I am going to talk with you about the study, your expectations as a participant, and answer any questions you have about your participation.
- This part will take about 20 minutes to complete.
- Do you have any questions?

Part 2: Observation
- I am going to observe you at your job for three to six 1-hour sessions. I will write down notes about how you are doing with your work and social tasks.
- I will not be talking with you or anyone else during this time.
- Do you have any questions?

Part 3: Training
- I am going to work with your peer partner on strategies that can help you improve your work and social skills at your job.
- You will not be part of this phase. You will keep working at your job without me observing you.
- Do you have any questions?

Part 4: Intervention
- I am going to observe you and your peer partner for six to eight 1-hour sessions at your job. I will write down notes about how you are working with your peer partner on work and social tasks.
- I will be observing and writing down notes about how you and your peer partner are working together.
- I will not be talking with you or anyone else during this time.
- After the intervention phase is done, I will return after two to three weeks to observe you and write down notes about your progress. Also, you will participate in an interview with me about how the intervention went and how well you feel

you did.
- Do you have any questions?

Feeling Tired or Do Not Want to Participate
- During the times we meet you may get tired or feel like you don't want to work, which is fine. I will ask you if you want to continue for a couple more minutes or if you would rather stop and continue the next time we meet.

Questions/Concerns
- Do you understand the phases described to you?
- Do you have any questions about what you will be asked to do?
- Do you have any questions about what you should do if you feel tired or you feel like you don't want to continue working on a given day? Remember it will be okay to tell me to stop if you feel tired or you just don't want to do anymore.

Your parents already gave permission for you to take part in this study. But even though your parents said "yes", you can still decide not to participate.

Questions/Concerns
- Do you have any questions or thoughts right now? Do you understand that even though your parents agreed that you could participate, you can still tell me "no" and no one will be upset with you?
- Remember it will be okay to tell me stop if you feel tired or you just don't want to do any more.
- ***If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or if you change your mind later and want to stop.***

You can ask me any questions that you have about the study at any time. If you have a question, you can call me at ███████████, email me at ███████████ or ask next time we meet. You may also contact my advisor, Dr. Lisa Cushing, at ███████████████████████ or the Office for the Protection of Research Subjects (OPRS) at (312) 996-1711. Do you have any questions now?

By the conclusion of the study, as a "thank you" for your time you will receive $30.00 for completing the three phases of the study. You will receive $10.00 after completing each phase, for a total of $30.00.

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

_____   _____
Name of Subject   Date

_____   _____   _____
Signature   Age   Grade in School

APPENDIX E: STUDENT WITHOUT DISABILITIES ASSENT FORM

APPROVAL
STARTS   EXPIRES
01/12/2017 — 08/02/2017
UIC UNIVERSITY OF ILLINOIS AT CHICAGO
INSTITUTIONAL REVIEW BOARD

University of Illinois at Chicago
ASSENT TO PARTICIPATE IN RESEARCH

Using Peer Supports in Work Based Settings for Students with Significant Disabilities

1. My name is Lindsay Athamanah and I am a PhD candidate in special education at the University of Illinois at Chicago.

2. I am asking you to take part in a research study because I am trying to learn more about how peer support can help students with significant disabilities at a job. I am also interested to know your thoughts about how the peer supports work in a job setting.

3. If you agree to be in this study, I will ask you to participate in three to four 45-minute training sessions with me. I will teach you different peer support strategies that you can use when working with and helping the students with significant disabilities on the job. Along with the training, I will ask you to participate in six to eight 1-hour intervention sessions. During this time you will apply the strategies with the students with significant disabilities. I will be observing you and the student on what strategies you use, how often you implement them, and what happens after you use the strategies. After the intervention sessions are complete, I will return after 2-3 weeks to observe and check to see how all students are doing in the job. The last part of your participation will be to fill out a written survey about how the intervention went, what suggestions you would give me as a researcher, and how you have grown during this study.

4. There are very few risks to participating in this research. You may be uncomfortable asking and answering questions about the students or the strategies. You may be uncomfortable to work on these strategies in front of other students on the job. There may be a possibility of a breach in privacy and confidentiality. You have the choice to not ask or answer any questions that you feel uncomfortable with, or not participate in the research at any time.

5. There may not be direct benefits to you immediately, but I hope that you will be able to grow in your knowledge of people with disabilities and different strategies to use while on the job. Also, I hope that by participating in this study, you are able to help special education teachers do a better job when they work with students with disabilities.

6. For each phase that you complete, you will receive $10 for a total of $30.

7. Your mom, dad, or guardian have already given their permission for you to participate

in this study, but you do not have to agree to participate even though they said "yes." Remember, this is up to you and no one will be upset if you don't want to participate or if you change your mind later and want to stop.

8. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can call me at ▓▓▓▓▓▓▓▓ or email me at ▓▓▓▓▓▓▓▓▓▓. You may also contact my advisor, Dr. Lisa Cushing, at ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ or the Office for the Protection of Research Subjects (OPRS) at (312) 996-1711.

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

_____   _____

 Name of Subject   Date

_____   _____   _____

Signature   Age   Grade

APPENDIX F: SPECIAL EDUCATOR CONSENT FORM

University of Illinois at Chicago
Research Information and Consent for Participation in Social Behavioral Research

Using Peer Supports in Work Based Settings for Students with Significant Disabilities
Teacher Consent Form

You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researcher any questions you may have.

Principal Investigator Name and Title: Lindsay S. Athamanah, doctoral candidate
Faculty Sponsor Name and Title: Lisa Cushing, Ph.D., Associate Professor, Special Education
Department and Institution: Special Education Department, University of Illinois at Chicago
Address and Contact Information: ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
Phone: ▮▮▮▮▮▮▮ **Email:** ▮▮▮▮▮▮▮▮▮▮

Why am I being asked?
You are being asked to participate in a research study about how peer supports affect the employability and social skills of students with and without significant disabilities in a work- based setting. You have been asked to participate in the research because you are a special education teacher working in a high school transition program with work-based placements for your students with significant disabilities. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with the University of Illinois at Chicago or your current school. If you decide to participate, you are free to withdraw at any time without affecting these relationships.

Five high school students with significant disabilities, five high school students without disabilities, up to five special education teachers, and up to five school personnel will be recruited for this study.

What is the purpose of this research?
The researcher hopes to determine if a peer support intervention implemented in a work based setting will be effective in building the employability and social skills of high school students with and without significant disabilities. Peer supports are strategies implemented with adult monitoring by students

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without disabilities to students with disabilities to improve academic and social skills (Carter & Kennedy, 2006). Peer supports have shown to improve academic and social skills in students with and without disabilities in the general education setting (Carter, Sisco, Melekoglu, & Kurkowski, 2007). This may provide policy-makers, administrators, and educators a more natural technique to apply in authentic settings when working with students with significant disabilities in employment.

What procedures are involved?
This research will be completed at a work-based setting agreed upon by the special educator, school personnel, and students. In addition to the recruitment phase, there are three more phases to the study: the Observation Phase, the Training Phase, and the Intervention Phase. You will only be required to participate in the Recruitment Phase.

The special educator and school personnel initial meetings to discuss background information about the students will take approximately 30 minutes to complete. The training phase will require the students without disabilities (e.g., peer partners) to meet with the researcher for three to four times. Each day's session will not be more than 45 minutes long. The total time the peer partners will participate in this phase will be no more than three hours. The intervention phase will require the peer partners to implement the peer support interventions in the employment setting for six to eight sessions. During this time the researcher will monitor the pairs of students for correct implementation of strategies. Each day's session will not be more than 60 minutes long. The total time the students will participate in this phase will be no more than six to eight hours. After two to three weeks, the researcher will return to observe the pairs again to see if the interventions are being maintained in the work-based setting.

The following describes more specifically what you will be asked to do (total time = 2 – 3 hours):
- *Meetings*: you will meet once to talk about the student(s) with significant disabilities referred for the study (e.g., current work and social skills).
- *Social Validity Survey*: at the conclusion of the study, the researcher will ask that you fill out a social validity survey addressing topics such as progress made by students, evaluation of the training sessions, and feasibility of the intervention.

What are the potential risks and discomforts?
There may be risks from the study that are not known at this time. To the best of my knowledge, the things you will be doing have no more risk of harm than you would experience in your day- to-day activities. Regardless, there is the risk that you may experience the following:
- During the observations, you may feel uncomfortable with the researcher observing you.
- There is the risk that a breach of privacy (others will know the subject is participating in research) and confidentiality (accidental disclosure of identifiable data) may occur. All data is confidential and no identifying data will be shared with others.

Even if you sign this consent form, you may withdraw from the study at any time, without consequence.

Are there benefits to taking part in the research?
You may not directly benefit from participating in this study. The study results may be used to help other special educators by providing an evidence-based practice to use in their transition programs. The results may be used in the future such as for providing effective practices that could be used to inform policy decisions. You may, however, become more aware of your inclusion practices as you engage in dialogue with the researcher, the employer, and the students. As a result, you may also learn about additional evidence-based practices that you would like to use to improve your own practice.

What other options are there?
You have the option to not participate in this study. You do not have to sign this form. Taking part in this study is entirely voluntary. If you do agree to participate, you may skip any questions that you do not feel comfortable answering. You are also free to withdraw at any time. If you decide not to take part or to skip some of the questions, it will not affect your current position or your relationship with the researcher.

What about privacy and confidentiality?
Information about you will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare (for example, when the UIC Office for the Protection of Research Subjects monitors the research or consent process) or if required by law. The research team consists of doctoral student, Lindsay Athamanah, and her doctorial advisor, Dr. Lisa Cushing. Study information, which identifies you and the consent form signed by you, will be looked at and/or copied for checking up on the research by UIC OPRS and State of Illinois Auditors. There may be a possibility that school personnel and students may know of your participation in this study.

Your answers will be confidential and all records of this study will remain private. At the start of the study, you will be assigned a pseudonym and a case number in place of your name and classroom number. A list will be created of the participants with their assigned pseudonyms and case numbers; this list will be stored separate from the data in a locked file cabinet in the locked office at the University. All research documents will be kept in a locked file cabinet in a locked room at the University, accessible only by Lindsay Athamanah. Any digital files will be assigned a code and saved on a password protected laptop only used by the researcher. Data collected about you and your information will remain confidential and will not be linked back to you; therefore, this information will not be used in any way by your principal to evaluate your work or influence your employment. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

What are the costs for participating in this research?
There are no costs to you for participating in this research.

Will I be paid for my participation in this research?
Following your participation in each phase of this study, you will be compensated with $10.00 for a total of $30.00 to thank you for your time and commitment.

Can I withdraw or be removed from the study?
If you decide to participate, you are free to withdraw your consent and discontinue participation at any time. There are no consequences for withdrawing. You have the right to leave this study at any time without penalty.

Who should I contact if I have questions?
You may contact Lindsay Athamanah if you have any questions about this study or your part in it. Lindsay Athamanah can be reached by phone at ██████ or by email █ ████████ You may also contact the faculty sponsor, Dr. Lisa Cushing by phone at ███ ███ or by email at ███████

What are my rights as a research subject?
If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 312- 996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Remember*:*
  Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

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

Signature of Subject
  I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

Signature	Date

Printed Name

Signature of Researcher	Date

Printed Name of Researcher

APPENDIX G: SOCIAL VALIDITY SURVEY - STUDENT WITH SEVERE DISABILITIES

<div align="center">

Peer Supports
Social Validity Survey – Students with Disabilities
(Questionnaire adapted from Carter et al., 2016)

</div>

Name: _____   Date: _____

Please complete the survey by circling the answer that closely matches your opinion. Your comments are very important to me.

1) Do you like going to school?:

YES	NO	UNSURE	UNCLEAR

2) Do you have friends at school?:

YES	NO	UNSURE	UNCLEAR

3) Do you like your job?:

YES	NO	UNSURE	UNCLEAR

4) Did you learn new things in this job?:

YES	NO	UNSURE	UNCLEAR

5) Did you like working with [names of peers] in this job?:

YES	NO	UNSURE	UNCLEAR

6) Did working with [names of peers] help you learn new things?:

YES	NO	UNSURE	UNCLEAR

7) Are [names of peers] your friends?

YES	NO	UNSURE	UNCLEAR

8) Would you like to keep working with [names of peers]?

YES	NO	UNSURE	UNCLEAR

Comments regarding participation in this project:

_____

_____

<div align="center">

Thank you for being part of this study!

</div>

APPENDIX H: SOCIAL VALIDITY SURVEY - STUDENT WITHOUT DISABILITIES

Peer Supports
Social Validity Survey – Peers
(Questionnaire adapted from Carter et al., 2016)

Name: _____   Date: _____

Please complete the survey by circling the number that corresponds to the phrase that closely matches your opinion. Your comments are very important to me.

1) Overall, I found participating in this study:

1	2	3	4	5
A significant waste of time and effort	A slight waste of time and effort	Neither beneficial nor harmful	Beneficial	Very worthwhile

2) The student with a disability [my partner] benefitted socially from having a peer support (e.g., talks more with peers, has more friends):

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

3) The student with a disability [my partner] benefitted in work skills from having a peer support (e.g., works more independently, learns new skills):

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

4) The peers without disabilities [I] benefitted socially from being a peer support:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

5) The peers without disabilities [I] benefited in work skills from being a peer support:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

6) At first, I was excited to become a peer partner:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

7) I felt confident serving in this role.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

8) I had enough help from the researcher to do this role well.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

9) This was too much work for me.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

10) I feel I was effective in this role.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

11) The initial orientation meeting with the researcher was helpful.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

12) Other students in the school should also do this.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

13) I would be a peer support again in the future.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

14) I understand why the teachers thought peer supports would be helpful for my partner with a disability.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

15) Our school should have more peer supports for students with disabilities.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

16) I consider my partner with disabilities to be my friend.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

17) I would recommend being a peer support to my other friends.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

18) My views about students with disabilities have changed for the better.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

19) I also spend time with other students who have similar disabilities at my school.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

Comments regarding participation in this project:

_____

_____

_____

Thank you for being part of this study!

APPENDIX I: SOCIAL VALIDITY SURVEY – SPECIAL EDUCATOR

Peer Supports
Social Validity Survey – Special Education Teachers
(Questionnaire adapted from Carter et al., 2016)

Name: _____   Date: _____

Please complete the survey by circling the number that corresponds to the phrase that closely matches your opinion. Your comments are very important to me.

1) Overall, I found participating in this study:

1	2	3	4	5
A significant waste of time and effort	A slight waste of time and effort	Neither beneficial nor harmful	Beneficial	Very worthwhile

2) The student with a disability [my partner] benefitted socially from having a peer support (e.g., talks more with peers, has more friends):

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

3) The student with a disability [my partner] benefitted in work skills from having a peer support (e.g., works more independently, learns new skills):

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

4) The peers without disabilities [I] benefitted socially from being a peer support:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

5) The peers without disabilities [I] benefited in work skills from being a peer support:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

6) I am motivated to keep using this strategy:

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

7) This strategy was a good way to address the educational needs of the student with a disability.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

8) This strategy fits will within this work based learning setting.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

9) The student with a disability has more friends as a result of this project.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

10) This strategy negatively impacted other students in the work based learning setting.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

11) I could use these the strategies I learned through this project with other students.

1	2	3	4	5
Fully disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Fully agree

Comments regarding participation in this project:

_____

_____

_____

Thank you for being part of this study!

APPENDIX J: DATA COLLECTION SHEET

Peer Supports
Direct Observation of Employability and Social Skills

Observer:	Work Site:
Date:	Start Time:
Target Student:	Target Peer:
Adult assigned to Student:	

Engaged in Work Task: Student (S) or Peer (P) is (+) or is not (0) engaged in a work task *Prompted:* Prompt was visual (VI), verbal (V), gestural (G), or hand-over-hand (H) to follow through on work task; No prompt given (N) *Format*: Inde – SWD engaged in work task independently, 1:1 – SWD engaged in work task with peer *Comment*: any notes about the observed interaction	*Engaged in Social Interaction*: Student (S) or Peer (P) Student is (+) or is not (0) engaging in a social interaction *Initiated*: Who initiated the exchange (S=swd, P=peer) *Quality*: 1= negative or unreciprocated, 2=infrequent, brief and neutral, Int + NR 3= intermittent and neutral, Int + R, 4= intermittent and positive, R + R, 5= sustained and positive, 2R + 2R *Comment*: any notes about the observed interaction

Minute	Engaged in work task = S	Engaged in work task = P	Prompted?	Format	Comments	Engaged in social = S	Engaged in social = P	Initiated social interaction	Quality	Comments
1	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
2	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
3	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
4	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
5	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
6	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
7	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
8	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
9	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
10	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
11	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
12	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
13	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
14	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
15	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
16	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
17	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
18	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
19	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
20	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
21	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
22	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
23	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	

24	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
25	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
26	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
27	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
28	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
29	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
30	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
31	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
32	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
33	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
34	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
35	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
36	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
37	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
38	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
39	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
40	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
41	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
42	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
43	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
44	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
45	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
46	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
47	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
48	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
49	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
50	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
51	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
52	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
53	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
54	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
55	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
56	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
57	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
58	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
59	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	
60	+ 0	+ 0	VI V G H N	Inde 1:1		+ 0	+ 0	S P	1 2 3 4 5	

Overall Impressions:

APPENDIX K: DATA ANALYSES TABLES FROM GAST & LEDFORD, 2014

Engagement in Work Tasks Independently

	Kim and Jenny		Beth and Melissa		Nate and Rose	
Within Conditions	*Baseline*	*Intervention*	*Baseline*	*Intervention*	*Baseline*	*Intervention*
Condition Sequence	1	2	1	2	1	2
Condition Length	5	8	6	5	7	4
Level						
Median	0	43.4	4.35	35.9	3.5	62.4
Mean	0.94	38.2	6.5	35.9	4.2	60.7
Range	0 – 2.5	20 – 68.1	4.1 - 14	31 – 40.5	1.8 – 7.5	51.2 – 66.7
Stability Envelope Range	0	34.7 – 52.1	3.5 – 5.2	28.7 – 43.1	3.8 – 4.2	49.9 – 74.9
Level Change						
Relative Change	1.25 – 1.1	34.9 – 43.4	4.3 – 7.8	33 – 38.8	1.8 – 5.9	56.6 – 64.8
Absolute Change	0 – 2.5	20 – 68.1	7.8 – 4.3	37.1 – 35	1.8 – 7.5	51.2 – 66.7
Trend						
Direction	Decelerating	Accelerating	Decelerating	Decelerating	Decelerating	Accelerating
Stability	Stable	Variable	Variable	Variable	Stable	Variable
Multiple Paths	No	No	Yes	Yes	No	No
Between Conditions	*Baseline to Intervention*		*Baseline to Intervention*		*Baseline to Intervention*	
Number of variables changed	1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced	
Changes in trend						
Direction Change		Positive		Positive		Positive
Effect Relative To Object		Accelerating		Accelerating		Accelerating
Stability Change	Stable	Variable	Variable	Variable	Stable	Variable
Change in level						
Relative Change	34.9 – 1.1	33.8, improvement	33 – 7.8	25.2, improvement	56.6 – 5.9	50.7, improvement
Absolute Change	20 – 0	20, improvement	37.1 – 4.3	32.8, improvement	61.8 – 1.8	60, improvement
Median Change	43.4 – 0	43.4, improvement	35.9 – 4.35	31.6, improvement	62.4 – 3.5	58.9, improvement
Mean Change	38.2 – 0.94	37.3, improvement	35.9 – 6.5	29.4, improvement	60.7 – 4.2	56.5, improvement
Data Overlap						
PND		100%		100%		100%
POD		0%		0%		0%

	Jeanette and Julia		Clark and Katie	
Within Conditions	*Baseline*	*Intervention*	*Baseline*	*Intervention*
Condition Sequence	1	2	1	2
Condition Length	9	3	10	1
Level				
Median	0	23.7	11	52.1
Mean	1.8	23.2	12.3	52.1
Range	0 – 5.7	22.2 – 23.8	5.3 – 18.8	NA
Stability Envelope Range	0	19 – 28.4	8.8 – 13.2	NA
Level Change				
Relative Change	0 – 4.1	22.2 – 23.8	7.1 – 13.3	NA
Absolute Change	0 – 5.7	22.2 – 23.8	13.3 – 7.1	NA
Trend				
Direction	Decelerating	Accelerating	Decelerating	NA
Stability	Stable	Stable	Variable	NA
Multiple Paths	Yes	No	Yes	NA
Between Conditions	*Baseline to Intervention*		*Baseline to Intervention*	
Number of variables changed	1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced	
Changes in trend				
Direction Change		Positive		Positive
Effect Relative To Object		Accelerating		Accelerating
Stability Change	Stable	Stable	Variable	NA
Change in level				
Relative Change	22.2 – 4.1	18.1, improvement	52.1 – 13.3	38.8, improvement
Absolute Change	23.7 – 0	23.7, improvement	52.1 – 7.1	45, improvement
Median Change	23.7 – 0	23.7, improvement	52.1 – 11	41.4, improvement
Mean Change	23.2 – 1.8	21.4, improvement	52.1 – 12.3	39.8, improvement
Data Overlap				
PND		100%		100%
POD		0%		0%

Social Interactions

Within Conditions	Kim and Jenny		Beth and Melissa		Nate and Rose	
	Baseline	Intervention	Baseline	Intervention	Baseline	Intervention
Condition Sequence	1	2	1	2	1	2
Condition Length	5	8	6	5	7	4
Level						
Median	2.4	45.1	22.2	60	33.9	38.1
Mean	1.9	46.4	24.2	58.9	33.4	40.4
Range	0 – 2.6	36.2 – 57.5	5.9 – 44.7	41 – 66.7	19.6 – 43.9	35.3 - 50
Stability Envelope Range	1.9 – 2.9	36.1 – 54.1	17.8 – 26.6	48 - 72	27.1 – 40.7	30.5 – 45.7
Level Change						
Relative Change	1 – 2.55	42.8 – 50.7	11.1 – 38.8	50.5 – 66.7	26.4 – 39.7	36.2 – 44.5
Absolute Change	2.6 – 2.4	57.5 – 36.2	5.9 – 23.4	60 – 60	43.9 – 33.9	35.3 – 50
Trend						
Direction	Decelerating	Decelerating	Accelerating	Zero-celerating	Decelerating	Accelerating
Stability	Stable	Variable	Variable	Variable	Variable	Variable
Multiple Paths	No	Yes	Yes	Yes	Yes	No

Between Conditions	Baseline to Intervention		Baseline to Intervention		Baseline to Intervention	
Number of variables changed	1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced	
Changes in trend						
Direction Change		Positive		Positive		Positive
Effect Relative To Object		Accelerating		Accelerating		Accelerating
Stability Change	Stable	Variable	Variable	Variable	Variable	Variable
Change in level						
Relative Change	42.8 – 2.55	40.3, improvement	50.5 – 38.8	11.7, improvement	36.2 – 39.7	-3.5, no improvement
Absolute Change	57.5 – 2.4	55.1, improvement	60 – 23.4	36.6, improvement	35.3 – 33.9	1.4, improvement
Median Change	45.1 – 2.4	42.7, improvement	60 – 22.2	37.8, improvement	38.1 – 33.9	4.2, improvement
Mean Change	46.4 – 1.9	44.5, improvement	58.9 – 24.2	34.7, improvement	40.4 – 33.4	7, improvement
Data Overlap						
PND		100%		80%		25%
POD		0%		20%		75%

	Jeanette and Julia		Clark and Katie	
Within Conditions	*Baseline*	*Intervention*	*Baseline*	*Intervention*
Condition Sequence	1	2	1	2
Condition Length	7	3	10	1
Level				
Median	26.2	63.2	26.1	54.2
Mean	26.5	61.6	26.1	54.2
Range	12.5 – 37.5	54.8 – 66.7	12.5 – 35.7	NA
Stability Envelope Range	21 – 31.4	50.6 – 75.8	20.9 – 31.3	NA
Level Change				
Relative Change	21.3 – 34	54.8 – 66.7	22.2 – 32.6	NA
Absolute Change	20.4 – 22.2	54.8 – 66.7	26.7 – 23.8	NA
Trend				
Direction	Accelerating	Accelerating	Decelerating	NA
Stability	Variable	Variable	Variable	NA
Multiple Paths	Yes	Yes	Yes	NA
Between Conditions	*Baseline to Intervention*		*Baseline to Intervention*	
Number of variables changed	1 – Peer Supports intervention introduced		1 – Peer Supports intervention introduced	
Changes in trend				
Direction Change		Positive		Positive
Effect Relative To Object		Accelerating		Accelerating
Stability Change	Variable	Variable	Variable	NA
Change in level				
Relative Change	54.8 – 34	20.8, improvement	54.2 – 32.6	21.6, improvement
Absolute Change	63.2 – 22.2	41, improvement	54.2 – 23.8	30.4, improvement
Median Change	63.2 – 26.2	37, improvement	54.2 – 26.1	28.1, improvement
Mean Change	61.6 – 26.5	35.1, improvement	54.2 – 26.1	28.1, improvement
Data Overlap				
PND		100%		100%
POD		0%		0%

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<div align="center">

VITA
LINDSAY S. ATHAMANAH

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EDUCATION

University of Illinois at Chicago	2012 - 2017

Chicago, IL
Doctorate of Philosophy, Special Education

University of Illinois at Chicago	2013 - 2014

Chicago, IL
Educational Research Methodology Online Certificate

University of Wisconsin at Madison	2001 - 2003

Madison, WI
Masters of Science, Communicative Disorders

University of Minnesota-Twin Cities	1997 - 2001

Minneapolis, MN
Bachelor of Arts, Speech and Hearing Science, cum laude

RESEARCH EXPERIENCE

University of Illinois at Chicago	2013 – Present

Chicago, IL
Research Assistant

- Assist in research, data collection, and writing of scholarly articles and grants

Project Coordinator for Project SET

- Coordinate day-to-day project activities and monitor the progress of Project SET objectives
- Co-teach a leadership seminar every semester
- Organize and coordinate the yearly Project GET SET conference
- Monitor the Project SET website and update with current information
- Organize and manage the admissions and application process for Project SET
- Supervise student workers and graduate students

RELEVANT WORK EXPERIENCE

Chicago Public Schools	2005 – 2012

Chicago, IL
Speech-Language Pathologist

- Evaluated and screened students using various tests to assess receptive and expressive language skills and articulation skills. Interpreted test scores and wrote reports based on results.
- Worked with students diagnosed with developmental delays using a variety of communication modes (e.g., oral, pictures, sign language).
- Collaborated with speech-language paraprofessionals, principals, teachers, teacher aides, occupational therapists, psychologists, social workers, nurses, case managers, and

families to discuss and execute interventions for the students. Participated in team meetings and Individual Education Plans.
- Collaborated with teachers, psychologists, social workers, and nurses on the School Based Problem Solving Team.
- Supervised speech-language paraprofessionals in therapy, lesson planning, and monitored progress of students.
- Assisted case manager in scheduling annual Individual Education Plans, Initial Eligibility meetings, and School Based Problem Solving meetings.
- Led a literacy based preschool-aged language group with students with speech/language impairments and general education students.
- Provided speech-language services in a one-on-one setting, small group setting, and in the classroom.
- Supervised speech-language practicum students from local Universities in their school placement settings.

UNIVERSITY TEACHING EXPERIENCE

University of Illinois at Chicago   Fall 2013, 2014, and 2016
Curricular Adaptations for Learners with Significant Disabilities

University of Illinois at Chicago   Fall 2014 – Spring 2016
Special Topics Leadership Transition Seminar
(Co-taught with Dr. Michelle Parker-Katz)

University of Illinois at Chicago   Fall 2016
Advanced Curricular Adaptations for Learners with Significant and Multiple Disabilities
(Teaching Assistant)

                                                                                       Spring 2017
University of Illinois at Chicago
Language Development, Diversity, and Disabilities
(Teaching Assistant)

GRANTS

College of Education Office of Research Grant. L. Athamanah. University of Illinois at Chicago. 2015. $500.

"Preparing Urban Leaders in Secondary Special Education" (PULSSE). L. Cushing, M. Parker-Katz, and D.M. Maggin. U.S. Department of Education, Office of Special Education Programs. 2014-2019. $1.25 million. *Assisted in writing the proposal.*

PUBLICATIONS

Walte, S., Cushing, L. S., Athamanah, L. S., & Posey, K. (under review). Seeking the perspectives of transition-age students with significant disabilities since 1990. *Division on Autism and Developmental Disabilities Online Journal.*

Parker-Katz, M, Cushing, L. S., & Athamanah, L. S. (under review). Fostering transition leadership to promote partnerships with families and communities. *Journal of Disability Policy Studies*.

Athamanah, L. S. (in press) Adaptive Communication. In *Disability in American Life: An Encyclopedia of Concepts, Policies, and Controversies.* Santa Barbara, CA: ABC-CLIO.

Cushing, L. S., Parker-Katz, M., Athamanah, L. S., Walte, S., & Posey, K. (in preparation). A Literature Review on Trends in Transition Research Since IDEA 1990. *Career Development and Transition for Exceptional Individuals.*

PRESENTATIONS

Parker-Katz, M., Cushing, L. S., & Athamanah, L. S. (2016, April). *Teacher Leadership and Community Conversations: Authentic Improvement to Foster Improved Transition Outcomes.* Presented at the Council for Exceptional Children Conference. St. Louis, MO.

Cushing, L. S., Parker-Katz, M., & Athamanah, L. S. (2016, April). *Building Transition Teacher Leadership to Improve Transition Outcomes*. Paper presented at the American Education Research Association Conference. Washington D.C.

Cushing, L. S., Parker-Katz, M., Keel, J. Awsumb, J., Hovland, J., Balcazar, F., & Athamanah, L. S. (2015, October). *How to Meaningfully Involve Urban Families in the Transition Planning Process.* Presented at the Illinois Statewide Transition Conference. Chicago, IL.

Parker-Katz, M., Cushing, L. S., & Athamanah, L. S. (2013, October). *Using Community Conversations to Support Post-School Outcomes for Transition Age Youth with Disabilities.* Presented at the 2013 Illinois Statewide Transition Conference. Effingham, IL.

Athamanah, L. S., Gast, S., Prow, J., Ruskusky, S., Stetson, J., & Tomeczko, C. (2012, April). *Understanding Communication in the Low Incidence Classroom.* Presented at Chicago Public Schools. Chicago, IL.

POSTERS

Athamanah, L. S., & Cushing. L. S. (2017, April). *The Implementation of Peer Supports in a Work-Based School Setting for Students with Severe Disabilities*. Poster presented at the American Educational Research Association Annual Meeting, San Antonio, TX.

Athamanah, L. S. (2017, April). *Promoting Peer Support in Work Based Settings for Students with Severe Disabilities.* Poster presented at the Council for Exceptional Children Convention & Expo, Boston, MA.

Athamanah, L. S., Cushing, L. S., Walte, S., Posey, K., & Maggin, D. (2017, April). *A Meta-Analysis of Single-Case Transition Research since IDEA 1990.* Poster presented at the Council for Exceptional Children Convention & Expo, Boston, MA.

Walte, S., Athamanah, L., Cushing, L., & Posey, K. (2017, April). *Using Student Input for Research about Transition-Aged Students with Significant Disabilities Since IDEA 1990: A Literature Review on the Methods and Topics in Transition Research.* Poster presented at the Council for Exceptional Children Convention & Expo, Boston, MA.

Cushing, L., Walte, S., Athamanah, L., & Posey, K. (2017, January). *Transition Trends for Students with Significant Disabilities Since IDEA 1990: A Literature Review on the Methods, Topics, and Interventions in Transition Research for Transition Age Youth with Intellectual Disability, Developmental Disabilities, Multiple Disabilities, and Autism Spectrum Disorder.* Poster presented at the Division on Autism & Developmental Disabilities Conference, Clearwater, FL.

Walte, S., Athamanah, L. S., Cushing, L. S., & Posey, K. (2017, January). *Using Student Input for Research about Transition-Aged Students with Significant Disabilities Since IDEA 1990: A Literature Review on the Methods and Topics in Transition Research.* Poster presented at the Division on Autism & Developmental Disabilities Conference, Clearwater, FL.

Athamanah, L. S., & Cushing, L. S. (2016, December). *Using Peer Supports in Work Based Settings for Students with Significant Disabilities.* Poster presented at the TASH Conference, St. Louis, MO.

Walte, S., Athamanah, L. S., Cushing, L. S., & Posey, K. (2016, December). *Using Student Input for Research about Transition-aged Students with Significant Disabilities Since IDEA 1990.* Poster presented at the TASH Conference, St. Louis, MO.

Athamanah, L. S., & Cushing, L. S. (2016, November). *Using Peer Supports in Work Based Settings for Students with Severe Disabilities.* Poster presented at the American Speech-Language-Hearing Association Convention, Philadelphia, PA.

Athamanah, L. S. (2016, October). *Peer Supports in Work Based School Settings for Students with Severe Disabilities.* Poster presented at the Division of Career Development and Transition Conference Pat Sitlington Student Research Poster Presentation, Myrtle Beach, SC.

Athamanah, L. S., Cushing, L. S., Walte, S., Posey, K., & Maggin D. M. (2016, October). *Meta-analysis of single-case transition research since IDEA 1990.* Poster presented at the Division of Career Development and Transition Conference, Myrtle Beach, SC.

Cushing, L. S., Athamanah, L. S., Parker-Katz, M., Walte, S., & Posey, K. (2016, April). *A Literature Review on Trends in Transition Research Since IDEA 1990*. Poster session presented at the Council for Exceptional Children Convention & Expo, St. Louis, MO.

Cushing, L. S., Parker-Katz, M., & Athamanah, L. S. (2016, January). *Transition Trends Since IDEA 1990: A Literature Review on the Methods, Topics, & Interventions in Transition Research for Transition Age Youth with Significant Disabilities.* Poster session presented at Division on Autism and Developmental Disabilities Conference, Waikiki Beach, HI.

Athamanah, L. S., Cushing, L. S., & Parker-Katz, M. (2015, November). *Transition Trends Since IDEA 1990: A Literature Review on the Methods, Topics, and Interventions in Transition Research.* Poster session presented at the Division of Career Development and Transition Conference, Portland, OR.

Parker-Katz, M., Cushing, L. S., & Athamanah, L. S. (2015, April). *Preparing Teachers to Enhance Family and Community Collaboration for Students with Disabilities.* Poster session presented at the Council for Exceptional Children Convention & Expo, San Diego, CA.

Parker-Katz, M., Cushing, L. S., & Athamanah, L. S. (2014, November). *Preparing Teachers to Enhance Family and Community Collaboration for Students with Disabilities.* Poster session presented at Teacher Education Division Conference, Indianapolis, IN.

Cushing, L. S., Parker-Katz, M., & Athamanah, L. S. (2013, December). *Improving Transition Services in Chicago: Partnering to Make a Difference.* Poster session presented at TASH, Chicago, IL.

Cushing, L. S., Parker-Katz, M. & Athamanah, L. S. (2013, November). *Transforming Transition Services in Chicago Through Project SET: Evaluation of Impact.* Poster session presented at Division of Career Development and Transition Conference, Williamsburg, VA.

Cushing, L. S., Parker-Katz, M. & Athamanah, L. S. (2013, November). *Using Community Conversations to Support Post-School Outcomes for Transition Age Youth with Disabilities.* Poster session presented at Division of Career Development and Transition Conference, Williamsburg, VA.

Cushing, L. S., Parker-Katz, M., & Athamanah, L. S. (2013, October). *Project SET: Seamless Effective Transition.* Poster session presented at the Illinois Statewide Transition Conference. Effingham, IL.

AWARDS & RECOGNITIONS

President's Research in Diversity Travel Award University of Illinois at Chicago	Fall 2015
Albin & Young Award - University of Illinois at Chicago Special Education doctoral student who shows promise of making significant contributions in the field	Fall 2013

INVITED SPEAKER

Urban Educators Special Education Doctoral Student Summer Institute University of Illinois at Chicago Panel Topic: Service and Community Interactions, Student/Graduate Conversations	June 2017
Collaborating with Families, Community, and Professionals University of Illinois at Chicago	October 2016

Topic: Person Centered Planning and Community Conversations

Urban Educators Special Education Doctoral Student Summer Institute University of Illinois at Chicago Panel Topic: Student/Graduate Conversations	June 2016
Urban Educators Special Education Doctoral Student Summer Institute University of Illinois at Chicago Panel Topic: Transition, Doctoral Studies, and Negotiating Responsibilities	June 2015
Special Education Student Teacher Seminar University of Illinois at Chicago Topic: Speech & Language Disorders	April 2013

CERTIFICATIONS

American Speech - Language - Hearing Association (ASHA, CCC/SLP)	2003 - Present
Illinois Department of Financial and Professional Regulation	2003 - Present
Illinois State Board of Education, School Service Personnel – Type 73	2007 - Present

PROFESSIONAL ASSOCIATIONS

American Speech–Language–Hearing Association (ASHA)	National Organization
Council for Exceptional Children (CEC)	National Organization
CEC – Division on Career Development and Transition	National Organization
CEC – Division on Autism and Developmental Disabilities	National Organization
TASH	National Organization