

Video-Based Instruction to Promote Employment-Related Social Behaviors for
High School Students with Severe Intellectual Disability

By

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For my former students in Atlanta who taught me more than
I ever could have imagined, I will devote my life's work
to paying it forward. This is all for you.

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CHAPTER I

INTRODUCTION

As students with intellectual disability (ID) begin the transition to life after high school, many aspire to enter the competitive workforce just as their peers without disabilities. Specifically, 78% of high school students with ID have a transition goal aimed toward working in the community (Shogren & Plotner, 2012). However, the opportunities available to young adults with ID after high school are often limited (Butterworth et al., 2012). In fact, 23.8% of young adults with ID have never held paid employment at any point within eight years after exiting high school. These rates are among the lowest of any disability category reported in the National Longitudinal Transition Study-2 (Newman et al., 2011).

The disappointing employment rates may be attributable in part to an absence of strong employment skills and prior vocational training at the secondary school level (Guy, Sitlington, Larsen, & Frank, 2009). One of the paramount goals of special education is to prepare students with disabilities for life after high school through transition planning and development of relevant employment skills (Individuals with Disabilities Education Improvement Act, 2004). However, the nature of employment training in most secondary programs is often limited and tends to focus narrowly on teaching technical skills in a classroom-based setting rather than emphasizing the soft skills needed to navigate integrated employment settings successfully (Guy et al., 2009; Pankaskie & Chandler, 2011). This restricted focus at the school level is incongruent with the expectations future employers hold for young adults with disabilities exiting high school transition programs (Agran, Hughes, Thoma, & Scott, 2016). Employers of people with and without disabilities expect that employees will enter with “job-ready” social skills repertoires

(e.g., interacting with customers and co-workers, requesting and providing assistance, responding appropriately to feedback; Carter & Wehby, 2003; Ju, Zhang, & Pacha, 2012; Ryndak, Alper, Hughes, & McDonnell, 2012). Social skills are integral in helping new employees with ID adapt to the dynamic and unpredictable nature of working in the community (Canella-Malone & Schaefer, 2015). Fluency in social skills also allows employee training to emphasize the acquisition of technical skills specific to the workplace (Butterworth & Strauch, 1994). Moreover, the failure to meet the social expectations of employers is one of the primary reasons why employees with ID often lose their jobs (Butterworth & Strauch, 1994; Chadsey, 2007; Greenspan & Shoultz, 1981). Thus, explicit instruction on social skills is especially needed for students with severe ID who often experience challenges navigating social interactions and relationships both in school and in the workplace (Lyons, Huber, Carter, Chen, & Asmus, 2016).

One logical venue to teach these much-needed skills is a student's high school environment. Park, Kim, and Kim (2016) presented a meta-analysis of seven randomized controlled trials evaluating job-related social skills training for students with a range of disabilities (e.g., autism, intellectual disability, learning disabilities) and found the largest effect in studies with school-based direct instruction. Schools offer opportunities for social interactions with peers and staff on a predictable basis while learning and practicing tasks intended for application to an employment setting (Agran et al., 2016; Ryndak et al., 2012). To adequately prepare students for competitive employment *retention* in addition to job *acquisition*, high school transition programs need to emphasize teaching employment skills while simultaneously providing supports that encourage both task independence and social integration (i.e., employment-related social behaviors). Employment-related social behaviors are comprised of task-related and non-task-related social behaviors (Carter & Wehby, 2003; Morgan & Schultz, 2012). Task-related behaviors include

following directions, accepting criticism or authority, staying engaged on task independently, and requesting assistance when needed. Non-task related behaviors include using social amenities (e.g., please, thank you), using appropriate conversational behaviors (e.g., making eye contact, appropriate volume), and maintaining appropriate personal appearance. Employment-related social behaviors encompass task and non-task related social interactions in the work place; they are comprised of a specific skillset expected by employers to act appropriately and succeed within a workplace setting (Agran et al., 2016). To equip students to meet the expectations of employers at the onset of the job rather than waiting until students have exited school, instruction on appropriate employment-related social behaviors should be included within the context of vocational skills instruction in high school transition programs (Gilson, Carter, & Biggs, in press; Kolb & Hanley-Maxwell, 2003; Lee & Carter, 2012).

Qualities of Effective Social Interventions in an Employment Context

With the pressing need for employment-related social behaviors development at the school level firmly established, it is critical that researchers and practitioners alike understand how to deliver this instruction effectively. Gilson and colleagues conducted a systematic review of 56 studies focusing on employment skills instruction for secondary students with ID or autism. Almost half of studies (42.8%) included a social component (i.e., defined by an opportunity to interact with others) in their dependent measures. Among the studies demonstrating efficacy emerged a pattern of three recurring qualities: (a) individualization, (b) self-regulation, and (c) generalization.

First, individualization is needed to ensure the skill instruction is targeted to meet the personalized needs of students. The term “social skills” comprise a wide spectrum of behaviors, ranging from proper eye contact to volume of voice to cognitive intuition regarding how to

navigate interactions appropriately. Social skills can be defined broadly as any behavior that result in positive social interactions (Elliot & Gresham, 1987; Rao, Beidel, & Murray, 2008), encompassing both verbal and non-verbal behaviors necessary for effective interpersonal communication. However, given the wide array of social-related strengths and deficits students with severe ID may possess (Lyons et al., 2016), broadly focused social skills training programs may inadvertently limit the scope of the behaviors they are actually intended to improve. Thus, to ensure social skills instruction is targeting each student's most relevant growth areas, interventions should be tailored to an individual's needs and designed with personal goals in mind.

Second, self-regulation is a key component of skill acquisition that affects students' learning and achievement (Bandura, 1997). Self-regulation, also known as self-regulated learning, refers to self-generated thoughts, feelings, and actions that are systematically designed to affect one's learning of knowledge and skills (Zimmerman, 2001). Specifically, self-regulation consists of three phases: forethought, performance control, and self-reflection. The forethought phase prepares students for the designated task through goal-setting or modeling; the performance control phase involves processes that occur during learning, such as feedback or prompting; and the self-reflection phase allows students to respond to their efforts by evaluating their goal progress and adjusting strategies as needed (Bandura, 1997). In the early stages of learning a social skill, students may benefit from observing models explaining and demonstrating the skill, which can lead to the emulative level when students attempt to approximate the general form of the model's behaviors. Repeated exposure to these models helps students to develop patterns, eventually forming an internalized representation of the skill independent of the models that can be adapted to fit new contextual conditions (Schunk & Zimmerman, 2007). Teaching social

skills within this framework may provide a promising pathway toward lasting applications in various settings (e.g., Maione & Mirenda, 2006; Thieman & Goldstein, 2001; Van Laarhoven, Kos, Pehlke, Johnson, & Burgin, 2014).

Third, effective social skills training should be designed to facilitate skill generalization outside of a controlled setting (Rao, Beidel, & Murray, 2008). This is especially imperative when preparing students for future integrated employment, as students need to have opportunities to practice these skills with unfamiliar people in unpredictable settings. One avenue to assess generalization of skills when teaching employment skills is through community-based vocational instruction, which is often a component of many high school transition programs for students with intellectual and developmental disabilities (IDD; Gilson et al., in press).

The Instructor's Role in Intervention Delivery

Staff in high school transition programs can be equipped to deliver interventions targeting employment-related social behaviors in ways that support individualization, self-regulation, and generalization. In many transition programs, teachers and paraprofessionals provide proximal support to students aimed at strengthening their vocational skills. These techniques mirror typical job coaching strategies used in supported employment settings, such as task analysis, prompting, fading, verbal instruction, physical demonstration, and performance feedback to help students learn job responsibilities. However, what is often missing from the support staff's responsibilities is a means to enhance social skills associated with job fluency, including interpersonal behaviors and workplace integration (Bennett et al., 2010; Gilson & Carter, 2016). That is, the close proximity of the support staff member can prevent full participation and inclusion in the school, community, or employment context (Carter, Sisco, Brown, Brickham, & Al-Khabbaz, 2008). However, reducing or removing the instructor or coach entirely can jeopardize the extent to

which students can receive the supports they need to be successful in their job tasks. Thus, effective training in the form of technology-based support could help to redefine this role as that of a facilitator rather than an instructor, in which the support staff can focus their efforts primarily on encouraging individualization, self-regulation, and generalization.

Video-Based Instruction as an Alternative to Direct Instructor Support

Prior research highlights several uses of technology to teach and support secondary students with IDD when acquiring employment skills. In the review by Gilson et al. (in press), more than half ($n = 34$) of the 56 studies used intervention approaches incorporating technology or some other instruction stimulus (e.g., picture cues) that was not primarily based on a human instructor (i.e., self-management, video-based, audio-based, picture and tactile-based instructional approaches). One of the most commonly implemented approaches in this literature was video-based instruction (VBI). This approach embeds components of visual and audio supports in an interactive modality typically delivered via a handheld device, such as a smartphone or tablet.

VBI has been well supported in the literature to teach social skills to students with intellectual and developmental disabilities (e.g., Bellini & Akullian, 2007; Mechling, Ayers, Bryant, & Foster 2014; Reichow & Volkmar, 2010; Spriggs, Knight, & Sherrow, 2014). VBI can incorporate video modeling or video prompting, both of which are used to teach students new skills with dynamic pre-recorded videos (Spriggs, Mins, van Dijk, & Knight, 2016). With video modeling, a student is expected to complete the task after watching the entire video (e.g., Bellini & Akullian, 2007); but with video prompting, students watch a portion of the video and complete one step before moving on to the next step (e.g., Gardner & Wolfe, 2013).

Findings across the literature indicate people are most likely to attend to a model similar to themselves in some way, especially when the model promotes a viewpoint of positive and

successful behaviors to increase motivation and self-efficacy (Bandura, 1997). However, prior reviews (e.g., Ayres & Langone, 2005; Bellini & Akullian, 2007) are inconclusive regarding differences in effects, maintenance, or generalization when comparing traditional video modeling (i.e., students watch someone else perform desired behavior in the video and imitates that person's behavior) to video self-modeling (i.e., students watch themselves perform desired behavior and imitates their own behavior; Dowrick, 1999). Additionally, research provides evidence that skills learned via video modeling generalize across different settings and conditions, with positive gains maintained for months following the conclusion of the intervention (Dowrick, 1999).

Gilson et al. (in press) identified 12 studies evaluating VBI as a primary intervention approach to teach employment skills to students with ID or autism. This approach was used in six forms: video modeling alone ($n = 4$), video prompting and feedback ($n = 2$), video modeling combined with video prompting ($n = 1$), video prompting combined with video self-prompting ($n = 1$), VBI with instructor support ($n = 1$), or comparison of two different forms of VBI ($n = 3$). VBI often combined different forms of demonstrative and responsive supports embedded in the videos, such as antecedent cues through prompting or modeling and performance feedback, including praise and error correction. Canella-Malone et al. (2015) successfully taught one student with autism and ID three different cleaning tasks using continuous video prompting with error correction and feedback. Van Laarhoven and colleagues (2009) also used video prompting combined with performance feedback to assist a student with a moderate ID working in a kennel to clean cages and mop the floor. Mechling and Ortega-Hurndon (2007) combined video modeling of the instructor and video prompting using a subjective point of view through the lens of the person completing the step. Berezna and colleagues (2012) combined instructor-based

video prompting with video self-prompting to guide three students with autism through a photocopying task analysis.

Although these studies demonstrated the effectiveness of VBI, only two studies addressed on-the-job social behaviors as primary dependent measures. Malouf and colleagues (1986) developed a videotape-based curriculum in which the experimental group of students with mild to moderate ID was assisted by an instructor through interactive scenes of employment settings with embedded lessons about understanding feedback, responding to criticism, and asking for help. The experimental group significantly outperformed the control group on measures of social skill development at posttest. Similarly, Van Laarhoven and colleagues (2014) compared the effects of video modeling with video feedback when teaching four students with IDD to include social interactions with staff and peers in their school-based jobs (i.e., office assistant). Three out of four participants demonstrated more substantial gains with feedback than video modeling. Although both studies shared the focus of employment-related social behaviors, they lack a focus on students with severe ID as well as three critical components for effective social skills instruction: (a) individualization, (b) self-regulation, and (c) generalization. What is needed, then, is a video-based support that helps students with severe ID learn relevant employment-related social behaviors with an emphasis on individual need, a routine of daily reflection, and opportunities to practice in a natural setting.

Research Questions

The present study focuses on increasing employment-related social behaviors for students with severe ID using VBI delivered from an iPad. The VBI entailed a sequence of instruction and reflection in which high school students first watched a video demonstrating the target behavior, performed the task uninterrupted (i.e., without having access to the videos), re-watched

the videos, and reflected on their performance before trying again. This study addressed the following research questions:

1. Does the use of VBI increase the occurrence of employment-related social behaviors of high school students with intellectual disability in school settings?
2. Does independent task engagement remain high when the staff facilitator's proximity is reduced?
3. Do students generalize the employment-related social behaviors learned in school-based work setting to a community-based work setting?

CHAPTER II

METHOD

Participants

Participants were five high school students enrolled in a transition program and four staff members. After receiving approval from the Vanderbilt University Internal Review Board, I recruited participants through the district's exceptional student education coordinator and several special education teachers.

Student participants. Student characteristics are displayed in Table 1. To be included in the study, students must have: (a) had a primary special education category of autism or severe intellectual disability; (b) met eligibility requirements for the state's alternate assessment as a student with a significant cognitive impairment; (c) been between the ages of 16-21 at the start of the school year; (d) attended the school-based transition program with an opportunity for community-based vocational instruction (CBVI) at least one day per week; and (e) received parental consent and provided verbal assent. All students had a transition goal in their Individualized Education Program (IEP) addressing obtaining integrated employment after graduation and improving their social skills. Given the intervention's focus on verbal skills and behavioral prompt delivery through a technological device, students could have been excluded from participating in the study if: (a) they were identified by their teachers as not requiring prompts for instructional support, (b) their teachers determined they would not need explicit instruction around social skill development because they are already performing satisfactorily in this area (i.e., as determined by the Employment-Related Social Behaviors Inventory, see

Appendix A), or (c) they were non-verbal and/or used an augmentative and alternative communication (AAC) device. However, no students were excluded for these reasons.

Table 1
Student Characteristics

Student	Age	Gender	Race	Disability category	Adaptive behavior	Cognitive functioning
Calli	20	Female	White	ID	76 ^a	<40 ^c
Eliza	21	Female	White	ID	61 ^b	52 ^e
Jeffrey	21	Male	White	ID; SLI	64 ^b	40 ^d
Cameron	19	Male	White	ID	58 ^a	<40 ^c
Bethany	18	Female	White	ID	69 ^a	62 ^d

Note. ^a General Adaptive Composite Score, Adaptive Behavior Assessment System II (ABAS-II); School, ^b Vineland Adaptive Behavior Scale – Survey Form; ^c Composite Intelligence Index, Reynolds Intellectual Assessment Scales; ^d Full Scale IQ, Wechsler Adult Intelligence Scale – IV (WAIS-IV); ^e Full Scale IQ, Leiter International Performance Scale – Revised; Adaptive Behavior Composite Score.

Calli. Calli was a 20-year-old, White female with an intellectual disability. According to her IEP, Calli’s teacher described her as a happy, eager learner who wants to do well in school. She was well liked by her peers and had many friends. Calli enjoyed being independent and liked to help others. Her mother noted her greatest concern was Calli’s ability to accurately communicate with others. Calli completed the Tennessee Department of Education (TDOE) Student Transition Survey and indicated she would like to obtain a job in the community after high school, possibly at a police station. When given the Reading-Free Vocational Interest Inventory (R-FVII:2; Becker, 2000), she demonstrated a high interest in the areas of automotive skills and building trades. Calli had three IEP goals related to strengthening social skills in an employment context.

Eliza. Eliza was a 21-year-old, White female with intellectual disability (Down syndrome). Her teacher described her as a student who came to school every day ready to work. Eliza enjoyed socializing with her peers and working to please others. Her mother’s greatest

concern was how to best prepare Eliza for postsecondary training during her last year of high school. Eliza indicated in the TDOE Student Transition Survey that she would like to work at a nursing home after completing high school. When given the R-FVII:2, Eliza demonstrated a high interest in patient care and personal service. She had two IEP goals related to the application of social skills to a vocational task.

Jeffrey. Jeffrey was a 21-year-old, White male with speech language impairment and intellectual disability (Down syndrome). His case manager described him as very social with many friends among his peers and the staff. In fact, Jeffrey was voted the high school's Homecoming King the previous year. His parents said they would like for Jeffrey to continue to work on social/work skills and transition to work opportunities. According to the TDOE Student Transition Survey, Jeffrey was interested in getting a job at a restaurant after finishing high school. His scores on the R-FVII:2 reflected high interest in personal service jobs. Jeffrey had two IEP goals on improving social communication within vocational training and employment settings.

Cameron. Cameron was a 19-year-old, White male with an intellectual disability. His teacher described him as a student who is easy to get along with and makes friends easily. Cameron indicated in the TDOE Student Transition Survey he would like to work at Pizza Hut and live independently. His scores on the R-FVII:2 demonstrated high interest in the areas of automotive, building trade, and food service. Cameron had three IEP goals related to strengthening social skills when practicing vocational tasks.

Bethany. Bethany was an 18-year-old, White female with an intellectual disability. Her teacher described her as a joyful learner with a good sense of humor who strives to do well in school and in the community. She noted Bethany had many friends, and her peers often looked to

her as a leader. Bethany indicated on the TDOE Student Transition Survey that she would like to get a job in which she could work with children, such as a teacher assistant at a day care. Her scores on the R-FVII:2 revealed a high interest in food service. Bethany had three goals related to using social skills in the workplace.

Staff participants. I trained three paraprofessionals and one special education teacher to facilitate the intervention during vocational skills instruction. Carolyn was a 59-year-old, White female special education teacher who had a master's degree and 36 years' teaching experience. Karen was a 55-year-old, White female paraprofessional who had a bachelor's degree and 13 years' experience in the role at the same school. Patricia was a 46-year-old, Black female paraprofessional who had a master's degree in special education and 10 years' experience in the role of a paraprofessional but was starting her first year at this high school. Kevin was a 57-year-old, White male paraprofessional who had a high school diploma and 18 years' experience in the same role. Three out of four staff members had known the students for at least three years (range = 1 month to 7 years). All staff members received a \$200 stipend for their participation in the study.

School and Setting

School-based job training. The primary setting for the study was a high school in an independent suburban school district in the southeastern United States comprising more than 5,400 students and 500 employees across five schools. All students were in the same functional skills class for the last two periods of the day (i.e., 12:50 p.m. to 2:30 p.m.). Students spent part of this time learning employment skills in small groups (i.e., 2-3 students per staff member) using the Transition Skills Lab modules, including Workforce Development, Employability Skills, and Life Skills (Pace Learning Systems, 1977).

The video-based instruction intervention specifically targeted a job-training task procedure called the “supply cart,” in which two students were accompanied by one staff member (i.e., either the teacher or one of three paraprofessionals) to practice employment-related social skills. At the beginning of each school year, their teacher reached out to other teachers who had an overlapping planning period about their interest in having the students frequently visit their classroom to offer free supplies. There were five teachers on the list for 6th period and seven teachers on the list for 7th period. Students distributed school supplies (e.g., index cards, file folders, dry erase markers, pens, pencils, paperclips, staples, copy paper) and sold candy (e.g., M&Ms, Snickers, Twix, Hershey’s bars) and snacks (e.g., peanut butter crackers, trail mix, almonds, cashews) to teachers, school office staff, and school administrators. They sold all items for one dollar. During the task procedure, students were responsible for pushing the cart, finding the teachers’ classrooms from a preassigned list for each class period, offering and distributing the items, and managing the money tendering and cash box. To help students locate the classrooms independently, the teacher placed small paper cut-outs with the school mascot above each teacher’s door, with colors differentiated for each period. Students were instructed to roll the cart to the classroom, knock on the door, greet the person, and ask, “Hello, would you like any free supplies or snacks for one dollar?”

While students were managing the cart, they also visited a teacher’s work room to wipe down the tables and counters. The total task procedure lasted about 30 min and occurred once during the middle of each period (i.e., not at the beginning or end of class as to not conflict with passing time in the hallway). Students typically managed the cart four days per week when school was on a regular schedule.

Hospital-based job training. All students participated in CBVI once per week at a local women's hospital accompanied by the teacher and two paraprofessionals. They rotated responsibilities at the hospital each week across three groups. The first group worked in the cafeteria cleaning tables and counters and collecting trays from customers in the dining area. The second group cleaned and dusted the waiting rooms across the hospital. The third group managed a hospitality cart in the patient wards in a similar way to the supply cart at the school. They distributed free magazines, crosswords, and coloring pages and sold candy and snacks for one dollar. Students visited the hospital each Thursday for three hours (i.e., 10 a.m. to 1 p.m.) beginning in November, approximately eight weeks after the start of the study.

Materials

Oneder app. Video-based instruction was provided via a mobile app called Oneder, which is supported across technology platforms such as smartphones, tablets, or computers. I chose this technology because of its capacity to gather and save multiple types of information in one place, including individualized student data, customizable instructional materials with built-in prompts, supports, and reinforcements for each task as needed. I provided students with an iPad during the intervention because it had a large screen for easy viewing of the video clips. All students had prior experience using an iPad and did not require extensive pre-training on the device. Each student was assigned an individual account personalized to support his or her target behaviors.

Creating the video clips. I chose to combine elements of video prompting and video modeling, encompassed in the umbrella term "video-based instruction," to create a self-regulated intervention. That is, I included an introductory video that summarized the lesson and its target behaviors so that students could access these videos independently without needing an instructor

to state the purpose or remind them of their target behaviors. I chose to do traditional video modeling, in which I served as the student model, rather than video self-modeling or point-of-view modeling because this is considered the best choice for behaviors not already in the students' repertoires (Franzone & Collet-Klingenberg, 2008; Sigafos et al., 2007). Moreover, the traditional video modeling filmed from a third-person perspective allowed the students to see visual elements of the model's body language during social interactions (e.g., eye gaze).

After identifying the target social behaviors for each student, I created individualized video clips and loaded them to each student's personal account. Each clip included captioned text that appeared in large font below the video while playing. Since these videos were filmed after school when students and teachers were not present, I acted as the student model and my research assistants acted as either the paraprofessional or the teacher the student would be visiting when operating the supply cart. The videos included the same supply cart, cash box, snacks, and supplies as the students used each day. I filmed four videos for each student. The videos outlined the typical sequence the students followed while they were navigating the supply cart in the school hallways.

The first video type was a brief introductory video introducing myself as the model and the three target behaviors the lesson would demonstrate. The introductory video was a personalized greeting that followed the script: "Hi, [student's name]. Today you are going to be leading the supply cart. I'm going to show you how to do this independently." I then listed the student's three target behaviors, and the video ended. These videos ranged in length from 19 to 22 s ($M = 20.2$ s).

The second video type comprised a series of video models illustrating the use of each target behavior. I filmed three unique videos of this type for each student, even if multiple

students shared the same target behavior. Each video demonstrated one of the student's target behaviors. In these sequences, I acted as the student model and engaged with the teacher model as the students typically do each day: "Hello. Would you like any free supplies or snacks for one dollar?" Each of these video clips included at least one demonstration of the target behavior (e.g., verbally initiate conversation) or a sustained example of duration behaviors (e.g., giving someone eye contact). Depending on the student's target behavior, the videos could include extended examples of social interactions in which the behavior continued to be demonstrated. We scripted personalized conversations to cater to each student's hobbies and interests. Specifically, Calli's videos mentioned soccer, the videos for Jeffrey and Cameron mentioned football, and the videos for Eliza and Bethany mentioned cheerleading. These modeling videos ranged from 19 to 60 s in length ($M = 41.73$ s).

Dependent Measures

Employment-related social behaviors. The primary dependent measure used to make phase change decisions was an individualized measure of *employment-related social behaviors* (ERSB). I worked with the school team to select three ERSB for each student to be measured during each observation. Each of these ERSB had to be demonstrated with a peer, teacher, school staff member, or someone else along the supply cart route. Therefore, we did not code occurrence of these behaviors during an interaction with the paraprofessional or classmate accompanying the student on the supply cart. Table 2 displays a summary of each student's ERSB with the operational definitions used by observers. See the observational Coding Manual in Appendix B for examples of each ERSB.

Observers used partial-interval data collection each 30 s to record the percentage of intervals in which at least one of three employment-related social behaviors occurred. This

interval duration was a long enough time to capture multiple behaviors while still being short enough to provide a more accurate estimate of total behaviors. We recorded one of two mutually exclusive options to characterize each behavior when it occurred: (a) *independent* (i.e., performed individually without assistance from anyone else) or (b) *assisted* (i.e., performed after a verbal or physical prompt from the teacher and/or paraprofessional).

Table 2
Employment-Related Social Behaviors Defined by Student

Student	ERSB 1	ERSB 2	ERSB 3
Calli	Initiate conversation verbally: student begins talking first to introduce conversation with someone (must be verbal; not a wave or gestural signal).	Verbally acknowledge someone: student provides a verbal volley that was clearly in response to something someone else said to her (must be verbal; not a wave or gestural signal).	Non-verbally acknowledge someone: student provides a non-verbal signal addressing someone in proximity or someone involved in a conversation (e.g., eye contact, head nodding, waving).
Eliza	Initiate conversation verbally: student begins talking first to introduce conversation with someone (must be verbal; not a wave or gestural signal).	Talk to someone while staying focused on assigned task: student initiates or responds to someone verbally while continuing to attend to the task assigned (i.e., multi-task).	Ask for help when needed: student asks for assistance from someone else during the task procedure.
Jeffrey	Respond appropriately to directions on a social-related task: student responds to a direction given by a staff facilitator intended for application during an interaction with other.	Initiate the end of a conversation appropriately: student <i>initiates</i> “goodbye” or “thank you” to someone before exiting the conversation (must be initiated by the student; does not leave the room without saying anything).	Ask for help when needed: student asks for assistance from someone else during the task procedure.
Cameron	Initiate conversation verbally: student begins talking first to introduce conversation with someone (must be verbal; not a wave or gestural signal).	Listen attentively in a conversation: student waits for his turn to speak before responding (i.e., does not interrupt when someone else is speaking or asking a question).	Non-verbally acknowledge someone: student provides a non-verbal signal addressing someone in proximity or someone involved in a conversation (e.g., eye contact, head nodding, waving).
Bethany	Verbally acknowledge someone: student provides a verbal volley that was clearly in response to something someone else said to her	Non-verbally acknowledge someone: student provides a non-verbal signal addressing someone in proximity or someone involved in a	Ask for help when needed: student asks for assistance from someone else during the task procedure.

(must be verbal; not a conversation (e.g., eye contact, wave or gestural signal). head nodding, waving).

Interactions with classmates. We also used partial-interval data collection each 30 s to record the percentage of intervals in which students interacted with their classmate during the task procedure. My interest was in comparing the frequency of interactions between the baseline and intervention phases to assess whether students became more or less social with classmates after the implementation of VBI. This measure was used as a proxy to understand the extent of social behavior students exhibited with their familiar peers, in order to provide a comparison with other people (e.g., teachers, non-familiar peers) who were the targeted interactors with ERSB. An interaction was defined as either a verbal initiation or response explicitly targeted for the classmate. This could have included components of the students' ERSB but it was not required to be recorded. Similar to the ERSB, we coded whether each interaction was (a) *independent* (i.e., performed individually without assistance from anyone else) or (b) *assisted* (i.e., performed after a verbal or physical prompt from the teacher and/or paraprofessional).

Independent task engagement. We collected data on *independent task engagement*, which was defined as the student doing the expected task; demonstrating visible focus (i.e., body oriented toward materials) on the assigned task; listening to directions given or asking questions of the teacher, paraprofessional, supervisor, or another student about the task; or engaging in instructional support materials (e.g., iPad with Oneder app). Task engagement is a state behavior (i.e., it tends to last more than 3 s). Since duration is often the more informative metric than count when observing states, I used momentary time sampling at the beginning of each 30 s interval to estimate duration of task engagement, which was converted to percentage of intervals.

Observers coded one of three mutually exclusive options for each time sample: (a) *engaged*, (b) *unengaged*, or (c) *no task*. We coded *engaged* if the student was focused on

performing the specific task or direction most recently given by the staff facilitator. Examples included: student was pushing the supply cart to the next room in the hallway or student was listening to the paraprofessional give instructions on an upcoming task. We coded a student as *unengaged* if the student was not focused on performing the specific task explicitly assigned by the staff facilitator. Examples included: student was talking or texting on phone during or after a task is given before it is completed; student was discussing a social topic but paused the task procedure (e.g., stopped pushing the cart). We coded *no task* if there was no expectation work was to be performed during this time. Examples included: student was on a restroom break or the task procedure had just ended.

Proximity. I used momentary time sampling at the beginning of each 30 s interval (i.e., at the :00 and :30 second mark of a minute) to collect data on the percentage of intervals students were in *proximity* to others (i.e., body orientation, distance of 5 feet or less, and position of the student and other person that allows easy access for interaction with the student). Observers noted everyone who was in proximity at the beginning of each interval across three groups: (a) classmate proximity, (b) staff facilitator proximity and (c) other proximity.

Observers indicated when the classmate was in proximity to the focus student. Students operated the supply cart in pairs, so the *classmate proximity* measure almost always referred to the classmate with whom they were assigned to manage the supply cart during that given task procedure. However, this measure could also be used for other students with disabilities enrolled in the same transition program.

We also marked whether the paraprofessional or special education teacher was in proximity (i.e., the staff member facilitating the task procedure for the student dyad). For graphing consistency, I later created the measure *staff facilitator proximity*, which combines the

proximity measures for paraprofessional and teacher, since they often rotated who was the staff facilitator for each task procedure, depending on scheduling or student groupings. Thus, the *teacher proximity* measure was only applicable during the sessions in which the special education teacher served as the staff facilitator.

All other teachers, school staff, and peers were coded as *other proximity*. The data collection sheet separates these measures by “peer” and “other.” I later combined both measures as *other proximity* in order to provide an estimation of the opportunities students had to engage in employment-related social interactions with others.

Examples of proximity included: student walking next to classmate, student working alongside teacher, or student walked by a peer in such a way as to allow an opportunity for greeting. Examples of students not being in proximity were: (a) someone was more than 5 feet away from the student, (b) someone was sitting with back or body faced away from student, or (c) someone was less than 5 feet away but would not respond to a verbal initiation (i.e., wearing headphones or on the phone).

Observers and Observational Procedures

Observers. I served as the primary observer, along with two research assistants recruited locally via online job boards. The first research assistant was a former paraprofessional employed in another district who had no prior experience with a research study. The second research assistant had recently completed her doctoral degree in biology, but had never worked on an educational research study. At least two observers collected data approximately four days each week. Two observers also collected data on the same student approximately every three days to assess interobserver reliability. Data collection occurred from August through February.

Observer training. I trained observers on the observational coding system prior to the start of the study. Observer training occurred in two stages. First, observers participated in an initial 2-hr didactic training, in which I reviewed the data collection manual, including operational definitions, examples, and non-examples for each variable. The training included guided practice using scenarios and video clips I created. I then assessed observers' knowledge of the manual using a written assessment, requiring a score of 90% or higher. Next, before collecting any actual study data, each observer needed to reach a minimum of 90% reliability (i.e., occurrence and nonoccurrence agreement) across three videos, as measured against a master code to provide a best estimate of the actual occurrence of events, and three live practice sessions with me prior to conducting observations. Each observer took approximately two weeks to attain the 90% reliability mark required to participate in live data collection.

Observational procedures. I measured dependent variables and treatment fidelity through direct live observations using a paper-and-pencil recording system (see Appendix C for an example of the Observation Data Collection Form). Observations began when the student was instructed by the paraprofessional to begin the task procedure (i.e., the supply cart activity) and ended when the student returned to the classroom after visiting the assigned teachers during the classroom period. Since students typically performed the task procedure in pairs, two observers accompanied them. One observer was assigned to one student and one observer was assigned to another. This allowed data collection to occur simultaneously. Observers stood outside of proximity (i.e., at least 5 feet away) in an unobtrusive position that allowed them to have the student in their scope of vision but away from the immediate area in which the procedure and interactions occurred. See Appendix B for full definitions and examples in Coding Manual.

The total duration of the task procedure ranged from 10 to 25 min, depending on whether teachers were in their classrooms during their planning period and how long students interacted with them. To ensure consistency across students, periods, and days, each observation period lasted 15 min. If the task procedure ended before the 15 min observation period, we coded the remaining time as “no task.” If the task procedure exceeded 15 min, we continued to follow the students through the task, but did not take data.

Interobserver agreement. I collected data on interobserver agreement (IOA) in approximately one third of sessions randomly selected and balanced across phases and students. We collected IOA data during the baseline phase, the VBI phase, and the maintenance probes. Due to hospital restrictions, IOA data could not be collected for generalization probes. During school-based training sessions, two observers recorded data simultaneously and independently for 34% of Calli’s sessions (range 32-33% across study phases), 35% of Eliza’s sessions (range 29-56% across study phases), 30% of Jeffrey’s sessions (range 31-43% across study phases), 32% of Cameron’s sessions (range 28-42% across study phases), and 33% of Bethany’s sessions (range 31-43% across study phases).

I calculated IOA three ways: (1) *overall agreement*, by designating each interval as an agreement or disagreement and dividing the number of agreements by the sum of agreements and disagreements; (2) *occurrence agreement for all measures*, by dividing the total number of intervals of agreements of occurrence by the sum of agreements plus disagreements; and (3) *nonoccurrence agreement for all measures*, by dividing the total number of intervals of agreements of nonoccurrence by the sum of agreements and disagreements. This accounted for less frequently occurring behaviors, such as the ERSB. Quotients were multiplied by 100%. I averaged agreement results across observation sessions for each student and reported mean and

range across students. Table 3 displays summary overall interobserver agreement data for each variable for each student.

Overall agreement across all five students ranged from 91% to 98% with a mean of 94%. Agreement for Calli averaged 94% during the baseline phase, 92% during the VBI phase, and 94% for her maintenance probe (range 91-97%). For Eliza, IOA averaged 95% during the baseline phase, 94% during the VBI phase, and 93% for her maintenance probe (range 94-96%). For Jeffrey, IOA averaged 96% during the baseline phase, 94% during the VBI phase (range 91-98%), and 92% for his maintenance probe (range 87-100%). For Cameron, IOA averaged 95% during the baseline phase, 94% during the VBI phase (range 93-97%), and 92% for his maintenance probe (range 90-100%). Agreement for Bethany averaged 94% during the baseline phase, 92% during the VBI phase (range 92-96%), and 93% for her maintenance probe (range 87-100%).

Table 3
Summary of Overall Interobserver Agreement by Measure

Measures	Calli		Eliza		Jeffrey		Cameron		Bethany	
	% M (range)		% M (range)		% M (range)		% M (range)		% M (range)	
	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI
Independent task engagement										
Engaged	96 (87-100)	99 (93-100)	99 (93-100)	99 (93-100)	99 (97-100)	98 (97-100)	98 (97-100)	97 (96-100)	98 (97-100)	99 (97-100)
Unengaged	100 (100)	98 (97-100)	99 (93-100)	99 (93-100)	99 (98-100)	99 (98-100)	98 (97-100)	96 (95-100)	98 (97-100)	99 (98-100)
No task	96 (87-100)	98 (97-100)	100 (100)	100 (100)	99 (98-100)	99 (99-100)	100 (100)	100 (100)	100 (100)	98 (98-100)
Proximity										
To staff facilitator	80 (57-97)	92 (82-100)	94 (80-100)	92 (82-100)	86 (70-100)	88 (77-100)	78 (73-87)	82 (80-97)	81 (70-100)	84 (80-97)
To classmate	82 (63-100)	87 (77-100)	93 (87-100)	93 (87-100)	98 (93-100)	99 (93-100)	84 (73-100)	87 (73-100)	88 (77-100)	93 (90-100)
To others	97 (93-100)	93 (87-100)	89 (77-97)	87 (77-100)	97 (93-100)	95 (90-100)	95 (83-100)	90 (88-97)	93 (77-100)	94 (88-97)
Classmate interactions										
Independent	87 (80-90)	90 (77-100)	81 (67-93)	84 (77-97)	84 (73-97)	82 (67-90)	84 (77-100)	82 (73-97)	80 (70-93)	82 (77-97)
Assisted	99 (97-100)	98 (97-100)	98 (97-100)	97 (93-100)	99 (97-100)	97 (96-100)	100 (100)	99 (97-100)	100 (100)	97 (93-100)
ERSB										
Independent	91 (80-97)	93 (87-97)	92 (90-93)	93 (87-97)	90 (77-100)	88 (70-97)	97 (90-100)	92 (90-97)	92 (80-100)	94 (88-100)
Assisted	98 (97-100)	97 (93-100)	94 (90-100)	97 (96-100)	93 (87-97)	97 (96-100)	98 (93-100)	94 (90-100)	96 (93-100)	97 (96-100)
Types of targeted ERSB										
Ask for help when needed	--	--	97 (93-100)	93 (90-100)	99 (97-100)	99 (96-100)	--	--	99 (93-100)	94 (90-100)
Verbally acknowledge others	89 (83-90)	90 (87-100)	--	X	--	--	--	--	93 (83-100)	90 (88-97)
Non-verbally acknowledge others	92 (87-100)	88 (80-97)	--	X	--	--	97 (93-100)	98 (97-100)	90 (77-100)	88 (80-97)
Initiate conversation	90 (77-97)	90 (80-97)	93 (87-100)	93 (87-97)	--	--	95 (87-97)	92 (82-100)	--	--
Listen attentively without interrupting	--	--	--	--	--	--	91 (83-97)	94 (87-97)	--	--
Respond appropriately to directions	--	--	--	--	95 (87-100)	96 (84-100)	--	--	--	--
Initiate the end of a conversation	--	--	--	--	93 (87-97)	90 (87-100)	--	--	--	--
Remain engaged while talking	--	--	93 (93-100)	90 (87-100)	--	--	--	--	--	--

Note. -- = indicates the ERSB was not targeted for this student. All percentages are rounded to the nearest whole number.

Fidelity Measures

Treatment fidelity for participating paraprofessionals was assessed in two ways: (a) observational measures collected as part of primary data collection (i.e., extent to which “assistance” is provided); and (b) fidelity checklists completed by observers during each observation period (see Appendix D). Observers used data from the momentary time sampling to measure proximity. We completed a checklist immediately after each session summarizing the paraprofessional behavior during the task procedure. The checklist addressed (a) how the paraprofessional initiated the start of the task procedure (and navigation to the videos on the Oneder device, if needed); (b) any adult facilitative behaviors used during the task procedure, including prompting, providing information, reinforcing, and checking; and (c) how the paraprofessional directed the student through the self-reflection guide following the task procedure.

Fidelity *before* the task procedure was defined by completion of the following steps in order: (1) Show video to student or give the student the VBI device; (2) Take away the device after the student has watched all the video clips; (3) Prompt the student to begin the task procedure by saying, “OK, go to work”; (4) Stand outside of proximity but still in visible distance of the student to assist if needed. Fidelity *during* the task procedure was determined by the paraprofessional remaining outside of proximity but still in visible distance of the student to assist if needed. “Needed assistance” was defined as a duration of at least 10 s in which the student paused after the task direction was given, indicating they may not know what to do. The paraprofessional could assist the student with the next step of the task and then return to their position outside of proximity for the student to carry out the next steps of the task. Fidelity *after* the task procedure was defined by completion of the following steps in order: (1) Return to

proximity of the student; (2) Give student device and show them all of the videos again; (3) Ask the student to self-reflect on their performance in the task procedure based on what they saw in the videos; (4) Praise the student's performance in the task procedure; (5) Give constructive feedback or advice to the student about how they can improve if needed; and (6) Help the student come up with a plan for how they will act differently next time they complete this task procedure.

Social Validity

I assessed social validity at the end of the study for participating students and staff. Three paraprofessionals and the special education teacher completed a survey comprised of 15 Likert-type questions and five short-response questions. These questions asked whether they enjoyed participating in the intervention, felt effective in their role, and were motivated to continue using self-monitoring support tools.

Students provided their feedback via an interview with their teacher (see Table 8). Questions addressed the extent to which students enjoyed participating in the study and whether they would like to do it again. Answer options were: *yes*, *no*, or *I don't know*. Students also had the opportunity to answer two short-response questions in writing or interview format about what they liked and did not like about the study. Students were encouraged by their teacher to be honest and open in their responses.

Experimental Design and Procedures

I used a multiple-probe-across-participants design (Gast & Ledford, 2014) to evaluate the effectiveness of video-based instruction on the acquisition of employment-related social behaviors. Probe sessions were balanced across days of the week for each student to ensure data

were representative. That is, students alternated the days and periods during which they performed the task procedure on the supply cart.

I introduced the first intervention phase in the tier with the lowest level of employment-related social behaviors during the baseline phase (i.e., Calli) and proceeded accordingly with each student. I used visual analysis to initiate phase changes based on level, trend, and variability of the data (Gast & Ledford, 2014) and to determine whether a functional relation existed between the introduction of the VBI and increases in occurrence of the ERSB.

Selection of target skills. To individualize the intervention for each student, I created a pre-baseline skills assessment adapted from *The New Transition Handbook* (Carter & Wehby, 2003; Hughes & Carter, 2012; see Appendix A). The inventory also included behaviors from the survey measure created by Salzberg, Agran, and Lignugaris/Kraft (1989) of critical social skills and recently replicated by Agran et al. (2016). Respondents were asked to evaluate each student's current level of performance of 52 total behaviors that would be demonstrated in a workplace setting (see Table 6). Response options included: *very poorly*, *somewhat poorly*, *somewhat well*, *very well*, or *unsure*. Items spanned across four sections addressing employment skills: *work-production related behaviors* (12 items; e.g., carrying out instructions that need immediate attention, performing job responsibilities without having to be asked); *task-related social behaviors* (12 items; e.g., asking a co-worker/peer for assistance when needed, accepting constructive criticism without getting angry or upset); *non-task-related social behaviors* (19 items; e.g., using polite language, making appropriate eye contact); *general work behaviors* (9 items; e.g., arriving to work on time, taking responsibility for own actions at work). Together, these sections comprised a skillset in which I categorized collectively as "employment-related social behaviors."

Additionally, I included four items in a separate section to capture the extent to which students could perform basic components of participation in this intervention not specifically related to employment skills: (1) ability to imitate behavior; (2) responding to stepwise prompting; (3) retaining new information; and (4) interacting with technology. There was an opportunity for respondents to write in any behavior or skill they believed to be pertinent but that was not addressed in the inventory. There was also an open space for any comments.

The special education teacher completed the social skills inventory twice, once prior to baseline and again after the intervention ended. The behaviors eligible for selection were those rated as *somewhat poorly* or *very poorly* in the teacher's initial evaluation of the student, unless otherwise specified by the teacher. Additionally, I asked her to select the behaviors she considered to be most relevant and applicable for the participating student to practice during the on-campus job training each day. These employment-related social behaviors (ERSB) included behaviors that had been introduced to the students, but that they were not yet using fluently.

I met with the teacher to determine the three ERSB to target for each student. We also incorporated information from each student's IEP goals. We used these data to develop an individualized definition for each student's targeted employment-related social behavior.

Pre-training. Before the intervention began, students participated in a brief pre-training session lasting approximately 30 min. All students were comfortable with the iPad because they used a smartphone, tablet, or computer daily. Moreover, they all had prior experience watching videos for entertainment and instructional purposes on YouTube. They watched three practice videos modeling a non-related topic (i.e., sharpening a pencil) on the Oneder app to ensure they could navigate properly to the video, press play, pause, and stop, and adjust the volume if

needed. Students were given the option to use headphones, but all chose not to use them for the practice videos or VBI.

Baseline phase. During the baseline phase, staff facilitators were instructed to support students in employment skills instruction as they typically would in their daily routines. They did not receive any training. Although they knew the intervention targeted social behaviors, they were not given a fidelity checklist and did not have access to each student's target ERSB. Observers recorded whether the student completed any component of his or her ERSB when given the opportunity (i.e., when "other" people were in proximity) and if so, whether assistance was required. They also recorded the student's independent task engagement and proximity to others. Observers used the fidelity checklist to record the extent to which any intervention components were implemented during the baseline phase.

Staff training. Staff participated in a 90-min training prior to beginning the intervention. Due to scheduling conflicts, I offered two identical training sessions, with the teacher and two paraprofessionals attending the first day and the remaining paraprofessional on the second day. The training comprised two parts: (1) didactic instruction delivered via PowerPoint lasting approximately 60 min; and (2) modeling use of the Oneder app lasting about 30 min. During the first hour, I shared an overview of job coaching strategies, highlighted the critical role of social skills in employment proficiency, and explained how we arrived at each student's ERSB. I introduced and modeled each step of the fidelity checklist to allow for clear understanding of the expected procedures during this phase. I focused on the need to reduce paraprofessional proximity and only provide minimal verbal prompts before and after the student completes the task procedure.

During the final 30 min of the training, I modeled how to use the Oneder app to navigate to student accounts to play the videos. I explained each student's target ERSB and had staff preview the videos each student would be watching during the intervention phase. At the end of the training, I explained the staggered nature of the study design and shared the projected timeline for VBI implementation. Each staff member received a folder, which included information from the training, copies of the fidelity checklist for each student's target behavior, and other supplemental materials. After the training session, I checked in informally with each staff member weekly to see if they had any questions about student progress and provided feedback if needed to address lapses in fidelity.

Video-based instruction. I preloaded all videos to each student's account before they began the intervention. Only the video clips relevant for each student's ERSB appeared on his or her Oneder account. Each student was given an introductory video summarizing all three target videos and one video modeling each ERSB. Right before students began the supply cart task, they watched each of the videos one time. The paraprofessional or teacher directed the student to watch the videos one at a time and then view the next video until the stop sign appeared, indicating completion of the videos. Next, the student returned the tablet to the staff member and proceeded through the task uninterrupted (i.e., without having the opportunity to watch the video again). The staff member was instructed to remain out of proximity during this time but was available to provide a system of least prompts if needed. Observers marked *assisted* on the data observation sheet and on the fidelity checklist to indicate if the staff member stepped in to provide support, noting the extent and type of prompting.

After the student completed the task procedure, he or she met with the staff facilitator to receive the iPad again. They re-watched the three videos and used a self-evaluation tool on

Onder to check off the list of each target behavior and indicate one of the following options for each: (1) *yes, I did the best I could*; (2) *yes, I did it but I could have done better*; or (3) *no, I did not do it*. During this debrief time, facilitator encouraged self-reflection by asking questions such as: *What could you have done better? What will you focus on for next time?* After the student completed the self-reflection, the facilitator shared any notes they observed during the task procedure and their own evaluation of the student's performance using the same options indicated on the student's self-evaluation tool. Each day ended with at least one target focus for the next day. See Appendix F for the Onder Reflection Guide completed after each session by the staff facilitator. After the intervention terminated, students still participated in the supply cart on a regular basis but could no longer access the tablet with VBI.

Maintenance probes. I collected maintenance data for each student after the intervention and Onder access was suspended. Maintenance probes occurred approximately one month after the intervention ended. During maintenance, students were expected to perform their employment tasks independently without the assistance of VBI or paraprofessional support. Observers used the same data observation sheet during maintenance to indicate whether any assistance was necessary.

Generalization probes. Beginning in November, I collected generalization probes at least once per week for each student in the women's hospital in which students received CBVI each week. The other two observers did not attend the hospital sessions due to hospital restrictions (e.g., obtaining immunization paperwork). Students did not have access to Onder during generalization. I collected data on the same target employment-related social behaviors for each student, independent task engagement, and paraprofessional proximity in the same way as in the baseline, intervention, and maintenance conditions.

CHAPTER III

RESULTS

Employment-Related Social Behaviors

Percentage of intervals with independent employment-related social behaviors is displayed in the solid line in Figure 1. All five students demonstrated an increase in their independent ERSB upon implementation of VBI. The mean percentage of baseline intervals containing ERSB ranged from 7 to 17% across all five students, compared with a range of 28 to 33% during the VBI phase. The variability in trend across phases and students is largely attributed to the opportunities for social interactions available to the students, measured by their proximity to peers and others (i.e., people aside from the classmate, teacher, and paraprofessional), as displayed in the dotted line.

Calli's percentage of ERSB (i.e., initiate conversation, verbally acknowledge others, non-verbally acknowledge others) averaged 9% during the baseline phase (range = 3-20%) and increased to an average of 32% (range = 17-50%) with an accelerating trend after the implementation of VBI. The percentage of non-overlapping data points (PND) was 87%, reflecting limited overlap of data points across conditions. Her most frequently demonstrated target behaviors across VBI sessions was verbal acknowledgement ($M = 22%$, range = 3-43%), followed by non-verbal acknowledgement, usually in the form of eye contact ($M = 20%$, range = 3-33%), and verbal initiation ($M = 11%$, range 6-23%).

Eliza's percentage of ERSB (i.e., initiate conversation, remain engaged while talking, ask for help when needed) averaged 11% (range = 3-20%) during the baseline phase and 28% (range = 17-40%) during the VBI phase with an immediate change in level and very limited overlap of

data points (PND = 88%). The ERSB she most frequently demonstrated across VBI sessions was remaining engaged while talking ($M = 19\%$, range = 3-20%), followed by verbal initiation ($M = 10\%$, range = 3-20%), and then asking for help ($M = 5\%$, range = 0-17%).

Jeffrey's rate of his ERSB (i.e., ask for help when needed, respond appropriately to directions, initiate the end of a conversation) increased from an average of 7% (range = 0-13%) in the baseline phase to 31% (range = 10-40%) and immediate change in level during VBI. There was very limited overlap of data points (PND = 94%), except for his penultimate observation when he was not instructed to watch the videos before beginning the task procedure. His most frequently demonstrated ERSB during VBI was appropriate response to directions ($M = 18\%$, range = 3-30%), followed by initiating the end of a conversation ($M = 15\%$, range = 7-23%), and then asking for help ($M = 4\%$, range = 0-10%).

Cameron's rate of ERSB (i.e., initiate conversation, non-verbally acknowledge others, listen attentively without interrupting) immediately increased with the introduction of VBI, shifting from an average of 14% (range = 0-27%) during the baseline phase to 33% (range = 27-40%) during the intervention phase with very limited overlap of data points (PND = 85%). Cameron's most frequently demonstrated ERSB during VBI was non-verbal acknowledgement ($M = 22\%$, range = 10-37%), followed by attentive listening ($M = 18\%$, range = 10-27%), and non-verbal acknowledgement ($M = 13\%$, range = 7-23%).

Bethany's rate of ERSB (i.e., ask for help when needed, verbally acknowledge others, non-verbally acknowledge others) increased from an average of 17% (range = 3-27%) during the baseline phase to 33% (range = 27-43%) and an immediate change in level with very limited overlap of data points (PND = 88%) after the introduction of VBI. Bethany's most frequently demonstrated ERSB during VBI was verbal acknowledgment ($M = 27\%$, range = 7-43%),

followed by non-verbal acknowledgement ($M = 23\%$, range 13-30%), and asking for help ($M = 1\%$, range = 0-7%). Table 4 displays a summary of the observational data collection, organized by dependent measures across students and primary study phases.

Table 4
Summary of Observational Findings Across Primary Study Phases

Measures	Calli		Eliza		Jeffrey		Cameron		Bethany	
	% <i>M</i> (range)		% <i>M</i> (range)		% <i>M</i> (range)		% <i>M</i> (range)		% <i>M</i> (range)	
	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI
Independent task engagement										
Engaged	99 (93-100)	99 (93-100)	99 (93-100)	99 (93-100)	99 (93-100)	98 (83-100)	99 (90-100)	99 (97-100)	99 (90-100)	99 (90-100)
Unengaged	1 (0-7)	1 (0-7)	1 (0-7)	0 (0-3)	1 (0-7)	1 (0-3)	1 (0-10)	0 (0-3)	1 (0-10)	0 (0-0)
No task	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-7)	0 (0-0)	1 (0-17)	0 (0-3)	0 (0-0)	1 (0-10)	1 (0-10)
Proximity										
To staff facilitator	88 (37-100)	32 (7-63)	88 (33-100)	39 (23-57)	80 (13-100)	42 (7-100)	62 (7-100)	41 (13-83)	54 (3-100)	25 (7-43)
To classmate	91 (73-100)	84 (43-100)	95 (83-100)	83 (67-100)	88 (53-100)	91 (77-100)	82 (43-100)	73 (0-100)	81 (10-100)	91 (67-100)
To others	10 (6-17)	18 (3-53)	11 (0-23)	17 (7-30)	16 (0-40)	26 (13-33)	21 (3-90)	25 (10-53)	15 (3-33)	26 (17-43)
Classmate interactions										
Independent	14 (7-27)	32 (3-67)	10 (0-17)	33 (17-60)	26 (3-73)	39 (23-63)	43 (17-87)	46 (0-70)	23 (7-47)	40 (7-60)
Assisted	0 (0-3)	0 (0-0)	0 (0-3)	1 (0-7)	0 (0-0)	0 (0-3)	0 (0-3)	0 (0-0)	0 (0-0)	0 (0-0)
ERSB										
Independent	9 (3-20)	32 (17-50)	11 (3-20)	28 (17-40)	7 (0-13)	31 (10-40)	14 (1-27)	33 (27-40)	17 (3-33)	32 (27-43)
Assisted	4 (0-7)	4 (0-13)	3 (0-10)	3 (0-7)	2 (0-7)	4 (0-13)	1 (0-10)	3 (0-7)	2 (0-13)	3 (0-10)
Types of targeted ERSB										
Ask for help when needed	--	--	0 (0-0)	5 (0-17)	1 (0-3)	4 (0-10)	--	--	0 (0-3)	1 (0-7)
Verbally acknowledge others	8 (3-13)	22 (3-43)	--	--	--	--	--	--	18 (0-33)	27 (7-43)
Non-verbally acknowledge others	1 (0-3)	20 (3-33)	--	--	--	--	6 (0-17)	22 (10-37)	9 (0-20)	23 (13-30)
Initiate conversation	5 (0-17)	11 (6-23)	7 (3-13)	10 (3-20)	--	--	9 (0-23)	13 (7-23)	--	--
Listen attentively without interrupting	--	--	--	--	--	--	6 (0-17)	18 (10-27)	--	--
Respond appropriately to directions	--	--	--	--	4 (0-10)	18 (3-30)	--	--	--	--
Initiate the end of a conversation	--	--	--	--	4 (0-10)	15 (7-23)	--	--	--	--
Remain engaged while talking	--	--	8 (0-20)	19 (3-20)	--	--	--	--	--	--

Note. These summary measures are reflective of 15-min observation sessions with 30-s intervals. All percentages are rounded to the nearest whole number. VBI = Video-based instruction; ERSB = Employment-related social behaviors. -- = indicates the ERSB was not targeted for this student.

Maintenance probes. We collected maintenance data for each student approximately one month after the termination of VBI. Calli's rate of ERSB maintained four weeks later at 30% and eight weeks later at 53%. Eliza's rate of ERSB maintained at 27% five weeks later and nine weeks later at 23%. Jeffrey's rate of ERSB maintained four weeks later at 33%. Rate of ERSB maintained four weeks later for both Cameron and Bethany at 53%.

Generalization probes. Generalization probes for ERSB are displayed as open circles in Figure 1. We observed each student in the hospital setting at least once after the implementation of VBI in the school setting. Calli's rate of ERSB averaged 35% across five generalization probes (range = 27-50%). During the first three probes and final probe she was selling candy and snacks to patients in the maternity ward, and during the fourth probe she was wiping down tables and chairs in a waiting room. Eliza's rate of ERSB averaged 34% across four generalization probes (range = 20-47%). She was selling candy and snacks to patients in waiting rooms and the maternity ward during all five probes. Jeffrey's rate of ERSB averaged 27% across four generalization probes (range = 13-33%). He was bussing tables and stocking items in the cafeteria during all three probes. Cameron's rate of ERSB averaged 30% across four generalization probes (range = 13-43%). He was bussing tables in the cafeteria for the first two probes and selling candy and snacks to patients during the final two probes. Due to winter break and an abbreviated school schedule afterward, students took a hiatus from the hospital for one month. Therefore, we could only collect two generalization probes for Bethany. The first occurred during the VBI phase and the second one occurred approximately one month after the end of her VBI. Her rate of ERSB was 27% when she was bussing tables in the cafeteria during the first probe and 37% when she was selling candy and snacks to patients in the final probe.

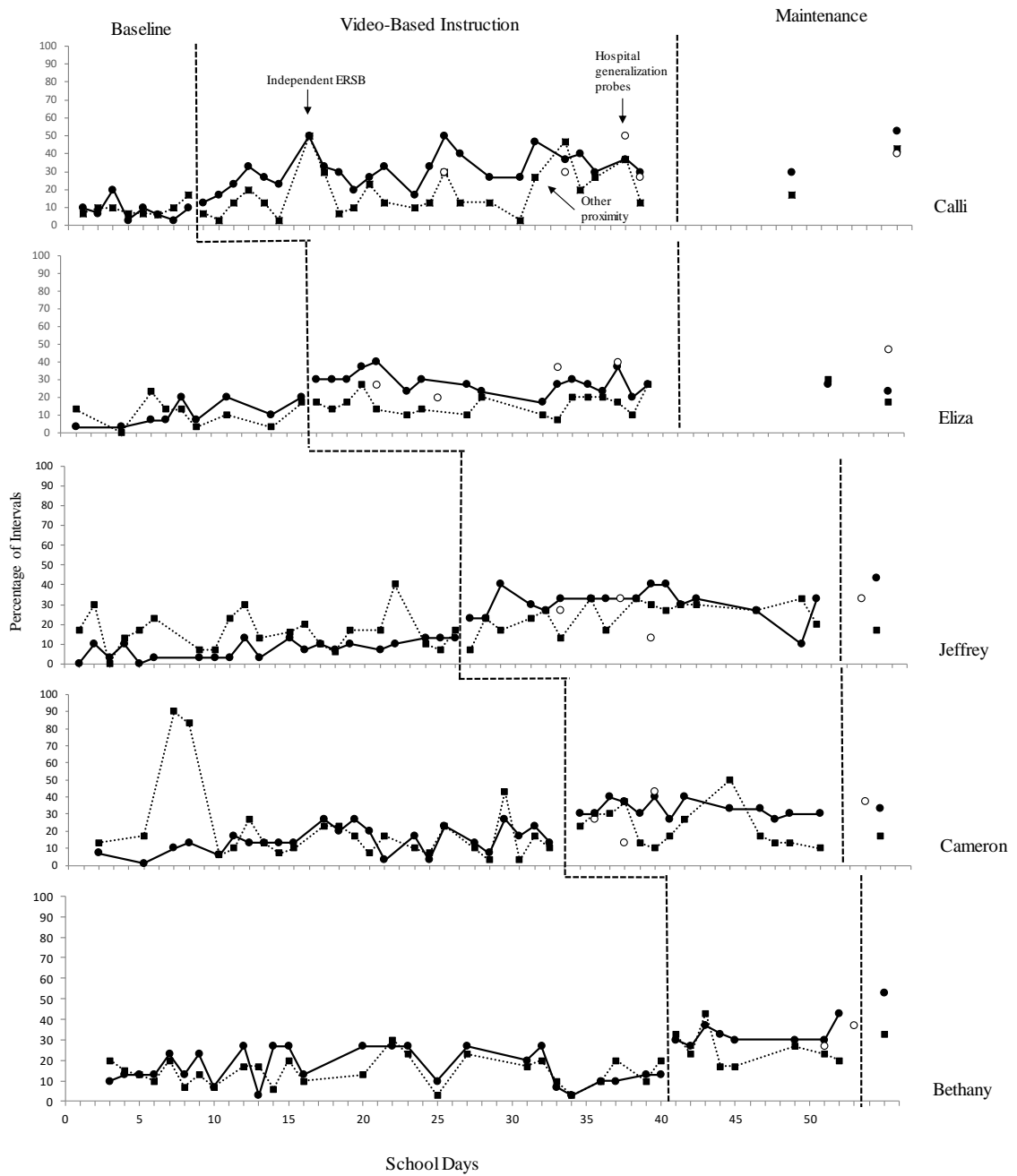


Figure 1. Employment-related social behaviors (solid line) of students and proximity of others (dotted line) during the baseline phase, intervention, and maintenance conditions. Open circles represent ERSB generalization probes.

Classmate interactions. Independent classmate interactions increased for all students between baseline phases and VBI phases. Average rate of interactions with classmates more than

doubled for Calli and Eliza, from 14% (range = 7-27%) during the baseline phase to 32% (range = 3-67%) during VBI for Calli and 10% (range = 0-17%) during the baseline phase to 33% (range = 17-60%). Jeffrey and Bethany, who were already considered more “social” before beginning the study, also demonstrated an increase in their interactions with classmates: 26% (range = 3-73%) in the baseline phase to 39% (range = 23-63%) during VBI for Jeffrey and 23% (range = 7-47%) to 40% (range = 7-60%) for Bethany. Although Cameron’s rate of social interactions was already quite high in the baseline phase ($M = 43%$, range = 17-87%), his interactions increased slightly during VBI and were channeled more appropriately ($M = 46%$, range = 0-70%).

Independent task engagement. Figure 2 displays independent task engagement for each student in the dashed line. All students sustained high levels of engagement during the task procedure, even as social interactions with classmates and others increased. In fact, average rates of task engagement remained identical between baseline phases and VBI phases for Calli, Eliza, Cameron, and Bethany ($M = 99%$, range = 93-100%). Jeffrey’s average rate of task engagement dropped slightly from baseline phase ($M = 99%$, range = 93-100%) to VBI phase ($M = 98%$, range = 83-100%) because of a day in which his task procedure ended several minutes early.

Proximity. Figure 2 also displays *staff facilitator proximity* along with independent task engagement. Overall, the average rates of *staff facilitator proximity* dropped significantly across students between baseline phases ($M = 74%$, range = 3-100%) and during VBI phases ($M = 36%$, range = 7-100%). The variability in proximity can be attributed to the arrangement of students as dyads assigned to one staff member during each task procedure. Since classmates were frequently in proximity to one another ($M = 86%$), there were many instances in which staff members were helping the classmate (who may or may not be in the VBI phase), which resulted

in them also being in proximity to the focus student. Figure 1 displays other proximity in the dotted line to estimate the opportunities students had to exhibit ERSB throughout phases.

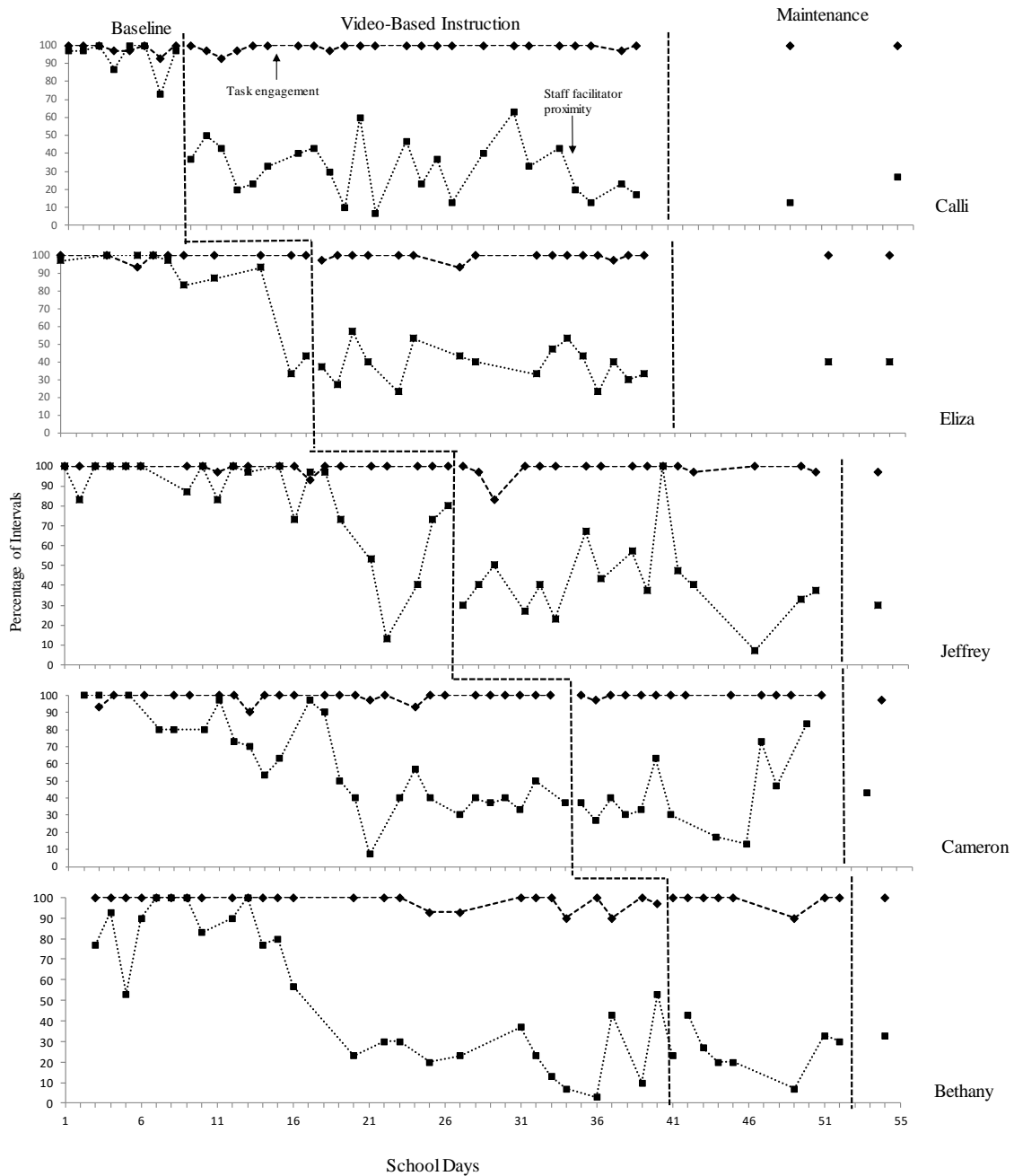


Figure 2. Independent task engagement (dashed line) of students and proximity of staff facilitators (dotted line) during the baseline phase, intervention, and maintenance conditions.

Peer proximity was uniformly low across students and phases. Students operated the supply cart during class periods when most peers were in classrooms. Moreover, they were not permitted to give out supplies or sell snacks to their peers, per school rules. Thus, *other proximity* almost always comprised the teachers on their planning periods that students visited with the supply cart. It could occasionally include administrators, custodial staff, or office staff. Overall, others were in proximity for an average of 14% of intervals across phases and students (range = 0-90%).

Treatment fidelity. Observers assessed treatment fidelity while observing the task procedure by indicating the extent to which staff facilitators provided assistance to the focus students on social interactions with classmates and their ERSB. Staff members provided little to no assistance explicitly targeting the students' ERSB during the baseline phase, which sustained at low levels after the implementation of VBI. Assisted ERSB (i.e., demonstration of ERSB before or after receiving assistance or prompting from a staff member specifically related to that ERSB) occurred infrequently across all students in both baseline and VBI phases, averaging about 3% of intervals for all students (range = 0-13%). Similar to assisted ERSB, assisted classmate interactions (i.e., an interaction with a classmate that was prompted by a staff member) were very infrequent across students and phases ($M = 0%$, range = 0-7%).

Observers also completed a fidelity checklist for each staff facilitator before, during, and after the task procedure. Table 5 displays staff fidelity data across phases and students. The percentage values represent the percentage of observations during which the item was checked "yes" on the checklist. During the baseline phase, staff fidelity was uniformly low. After staff training and the staggered implementation of VBI, fidelity increased significantly across all staff members. Fidelity was 100% for the support behaviors demonstrated prior to the task procedure

Table 5
Fidelity Findings Based on Observer Checklists

Measures	Calli		Eliza		Jeffrey		Cameron		Bethany	
	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI	Baseline	VBI
Before the task procedure										
Show video to student on tablet.	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Take away the device.	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Prompt the student to begin work.	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
During the task procedure										
Stand outside of proximity but still in visible distance to assist if needed.	0%	94%	0%	88%	0%	80%	0%	100%	0%	84%
Provide assistance if needed (i.e., student pauses for 10 s).	75%	23%	67%	33%	67%	33%	80%	100%	67%	23%
Give advice or information to support the next step of the task procedure.	80%	80%	67%	44%	80%	40%	67%	100%	67%	50%
After the task procedure										
Return to proximity of the student.	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Show the student all videos again.	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Ask the student to self-reflect on their performance based on what they watched.	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Praise the student's performance.	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Give constructive feedback about how student can improve if needed.	0%	94%	0%	94%	0%	100%	0%	100%	0%	100%
Help the student come up with action steps for the next time they perform the task procedure.	0%	88%	0%	94%	0%	100%	0%	100%	0%	94%

Note. Values represent the percentage of observations during which the answer was recorded as “yes.”

(i.e., show videos to the student, take away the device, prompt the student to begin the task procedure, and stand outside of proximity). During the task procedure, fidelity averaged 55% for three support behaviors (i.e., stand outside of proximity, assist if needed, give advice or information to support the next step if needed). Fidelity averaged 90% for support behaviors after the task procedure (i.e., return to proximity, give back the device, ask the student to self-reflect on their performance, praise the student’s performance, give constructive feedback to the student, help the student come up with a plan for how they will act differently next time). The areas of weakest demonstration of fidelity were related to proximity and assistance during the task procedure.

Employment-related social behaviors inventory. Table 6 displays the teacher’s evaluation of the employment-related social behaviors inventory pre- and post-VBI. The starred items indicate behaviors selected as the target ERSB for each student. She indicated growth by at least one point on the Likert scale for each student’s target ERSB. In other areas not directly targeted by the intervention, she indicated sustained or increased levels of proficiency.

Table 6
Teacher Pre/Post-VBI Employment-Related Social Behaviors Inventory

Items	Calli	Eliza	Jeffrey	Cameron	Bethany
Work-production related behaviors					
Carrying out instructions that need immediate attention	3/4	3/3	3/4	3/4	4/4
Completing quality work	3/4	4/4	3/4	3/4	4/4
Working well without the close supervision of others	2/3	2/4	2/4	3/3	4/4
Solving routine work-related problems without help	2/3	2/3	2/3	3/4	3/4
Finding necessary information prior to performing the job	2/4	2/4	2/4	4/4	4/4
Working well under pressure	2/3	2/4	1/3	4/3	3/3
Working at the speed expected by the supervisor/teacher	3/4	3/4	3/4	4/4	4/4
Working at a job continuously without getting distracted	2/3	2/4 ^a	3/3	2/3	4/4

Performing job responsibilities without having to be asked	2/3	3/4	3/4	3/4	4/3
Responding appropriately to job-related emergencies	3/3	3/3	2/4	3/4	4/4
Showing initiative	3/4	3/4	3/4	3/4	4/4
Solving problems	3/3	2/3	2/4	3/4	4/4
Task-related social behaviors					
Working together with others as a member of a team	3/4	4/4	3/4	3/4	4/4
Accepting help from co-workers/peers	3/4	4/4	4/4	3/4	3/4
Asking a supervisor/teacher for assistance when needed	2/4	3/3	3/3	4/4	4/4
Seeking clarification for unclear instructions	2/4	2/3	3/3	3/4	4/4
Speaking appropriately to a supervisor/teacher	4/4	4/4	4/4	4/4	4/4
Offering to help co-workers or customers	4/3	3/4	4/4	4/4	4/4
Asking for an explanation when instructions are unclear	2/3	2/3 ^a	2/4 ^a	3/4	2/4 ^a
Referring questions to others when unsure of the answer	2/3	2/3	4/4	3/4	3/3
Asking a co-worker/peer for assistance when needed	2/3	3/3	4/4	3/4	4/3
Following directions	2/4	2/4	2/3 ^a	3/4	4/4
Finding necessary information prior to starting a job task	3/4	2/4	2/3	2/4	4/4
Accepting constructive criticism without getting angry or upset	4/4	4/4	4/4	4/4	4/4
Non-task-related social behaviors					
Refraining from swearing or using objectionable language and gestures	4/4	4/4	4/4	4/4	4/4
Making friends with co-workers/peers	4/4	4/4	4/4	4/4	4/4
Interacting well with strangers	2/3	3/4	4/4	3/3	3/4
Listening to the other person in a conversation	2/3	3/3	3/3	2/3	4/4
Acknowledging what others are saying (e.g., eye contact, nodding)	2/4 ^a	4/4	4/4	2/4 ^a	2/4 ^a
Speaking in an appropriate tone of voice	4/4	4/4	4/4	3/3	4/4
Making appropriate eye contact	1/4 ^a	4/4	3/4	3/4	2/4 ^a
Using polite language (e.g., thank you, please)	4/4	4/4	4/4	4/4	4/4
Maintaining appropriate affect most of the time	4/4	4/4	4/4	4/4	4/4
Expressing appreciation to co-workers/peers	3/3	4/4	4/4	3/4	3/3
Responding appropriately to joking or teasing	4/4	3/4	4/4	4/4	4/4
Disagreeing with co-workers/peers without arguing or yelling	4/4	U/4	4/4	4/4	4/4
Refraining from interrupting others at inappropriate times	3/3	3/4	3/3	2/4 ^a	4/4
Refraining from inappropriate touching of others	4/4	4/4	4/4	4/4	4/4

Avoiding complaining too much	4/4	4/4	4/4	4/4	4/4
Offering compliments to others	3/3	4/4	4/4	4/4	4/3
Discussing personal problems only in appropriate situations	2/4	4/4	4/4	3/4	4/4
Starting conversations with others	3/4 ^a	2/3 ^a	4/4	2/4 ^a	4/4
Ending conversations with others	3/4	2/3	2/4 ^a	2/4	4/4
General work behaviors					
Maintaining good personal hygiene	3/4	4/4	4/4	4/4	3/4
Requesting days off of work from the supervisor	U/U	U/U	U/U	U/U	U/U
Returning from break or lunch on time	4/4	4/4	4/4	4/4	4/4
Arriving to work on time	4/4	4/4	4/4	4/4	3/4
Taking responsibility for own actions at work	4/4	4/4	4/4	4/4	4/4
Calling in to work when sick or running late	U/U	U/U	U/U	U/U	U/U
Accepting responsibility when work is missed or incorrect	4/4	4/4	4/4	4/4	4/4
Dressing appropriately for the job	4/4	4/4	4/4	4/4	4/4
Accepting unexpected schedule changes	3/4	U/4	4/4	4/4	4/4
Pre-intervention screening behaviors					
Write-in: <i>Ability to imitate behavior</i>	3	4	3	4	4
Write-in: <i>Responding to stepwise prompting</i>	4	4	3	4	4
Write-in: <i>Retaining new information</i>	2	2	2	3	4
Write-in: <i>Interacting with technology</i>	3	U	U	4	4

Note. Inventory adapted from measurement tools created by: Agran, Hughes, Thoma, & Scott (2016); Carter & Wehby (2003). All scores evaluated by the special education teacher pre/post-VBI; 1 = very poorly, 2 = somewhat poorly, 3 = somewhat well, 4 = very well, U = unsure. ^a indicates this was a targeted ERSB for this student.

Social validity. Responses to social validity surveys are summarized in Tables 7 and 8.

Overall, staff members felt the VBI training was practical and reasonable and felt prepared to assist students with the videos. They all agreed this type of intervention fit well in the setting and felt their students benefited from it. Carolyn described VBI as a “completely new way of teaching skills.” She noted, “[The students] were able to see exactly what they were to do. They were able to hear exactly what they were to say.” When asked about whether she noticed a change in her students after being a part of this study, she wrote: “Their self-confidence has skyrocketed!” Karen and Keith echoed this sentiment when they were asked a similar question about whether they changed after being a part of the study. Karen noted, “It made me more aware of our students being able to learn new things and gaining confidence and more

independence at the same time.” Kevin responded, “I now have a better perspective on new ways to help the students achieve the goals set for them.”

Table 7
Staff Social Validity Survey Responses

Note. 1 = strongly disagree, 2 = agree, 3 = neutral, 4 = agree, 5 = strongly agree. T = teacher; P = paraprofessional.

Statements	Carolyn	Kelly (P)	Patricia	Kevin (P)
	(T)		(P)	
The training I received was practical and reasonable.	5	5	4	4
I feel that this is an effective addition to traditional job coaching.	5	4	4	4
I was effective in my role as a coach.	5	4	3	4
I felt prepared to assist students with the videos.	4	5	3	4
The videos were helpful for my students.	5	4	4	5
It was easy to step away from the student during task procedures.	4	4	3	4
I think independence is an important part of job success.	5	5	5	5
I think social integration is an important part of job success.	5	5	5	5
This type of intervention fit well in the workplace setting.	4	5	4	5
My students benefitted socially from this coaching.	5	5	5	5
My students’ job independence increased from this coaching.	5	4	5	5
I will continue to use these strategies after the study ends.	5	4	5	4
My students enjoyed receiving this intervention.	5	4	5	4
This intervention had a negative impact on the school/workplace environment.	1	1	1	1
Overall, I enjoyed participating in this project.	5	5	4	4

Student responses are displayed in Table 8. One of the staff members read aloud the questions for each student to provide feedback verbally. To keep students from feeling obliged to answer positively about the study due to social desirability, staff members explained to them the importance of honesty in their responses. They were advised to express their opinions openly and could ask for help or clarification as needed. All students indicated they liked watching the videos before doing their job and they would like to watch more videos like this to learn new things. All felt the videos helped them to do their job better, except for Jeffrey who was unsure. Eliza said that watching the videos made her happy and confident. Calli said, “I liked that the videos were short and told me what to do.”

Table 8
Student Social Validity Survey Responses

Statements	Calli	Eliza	Jeffrey	Cameron	Bethany
I liked watching the videos before doing my job.	Y	Y	Y	Y	Y

I think the videos helped me do my job better.	Y	Y	I	Y	Y
I would like to watch more videos like this to learn new things.	Y	Y	Y	Y	Y
I would like to work and interact with other people in my future job.	Y	Y	Y	Y	Y

Note. Y = yes, I = “I don’t know.”

CHAPTER IV

DISCUSSION

The need to strengthen employment-related social behaviors for young adults with severe ID is vital both to job acquisition and job retention (e.g., Butterworth & Strauch, 1994). All five students in this study desired integrated employment upon completing high school, though they each lacked critical social skills identified by employers as necessary to succeed in the workplace (Agran et al., 2016). I evaluated the use of video-based instruction as an avenue to increase three individualized ERSB per student and maintain task engagement in the school and workplace setting. This study extends the literature focused on technology-based intervention approaches used to teach employment skills by offering several new understandings of the implementation and impact of video-based instruction for high school students with severe ID.

First, our data revealed a functional relation between the implementation of VBI and each student's individualized ERSB. All five students demonstrated and sustained a change in level after they began the intervention in the school setting. These findings are important as baseline data indicated students rarely demonstrated their ERSB above 25%, despite being in proximity to others. Intervals with targeted ERSB increased by an average of 20% (range = 15-24%) across students when VBI was implemented for each student. This change in behavior approaches the ceiling of expectations for social interactions considering the nature of the task procedure and the available opportunities for interactions. Specifically, opportunities for social interactions with others (i.e., mean percentage of intervals in which others were in proximity based on momentary time sampling) averaged 20% across students and phases. Several components of this

intervention package could contribute to these observed gains, including the video models, the staff member's reduced proximity, the pre- and post-reflection process, or the explicit focus of social skills instruction delivered in an individualized way. Although the study design does not allow me to distinguish which component or combination thereof may have contributed most to the change in behavior, I can conclude VBI as a whole offers an effective modality to increase employment-related social behaviors for students with severe ID.

Second, even as students were interacting more with others during the VBI condition, task engagement maintained at high levels for all students. Although multi-tasking was only a targeted ERSB for Eliza, data for all students indicate they were able to participate in more social interactions while still performing the basic expectations of the task procedure (e.g., pushing the cart, finding the classroom, money tendering). Consistent with findings of other studies (e.g., Carter et al., 2011; Gilson & Carter, 2016), high levels of engagement across phases suggest the close proximity of a staff member was not required for students to remain attentive to their task. Since VBI did not explicitly address task engagement (except for Eliza), it raises a broader question of whether consistent staff proximity is needed for students to remain engaged in their assigned task. Prior literature provides abounding insight about the appropriate utilization of paraprofessionals in school settings (e.g., Carter, O'Rourke, Sisco, & Pelsue, 2009; Fisher & Pleasants, 2012), raising concern with the extent to which direct support is needed to facilitate social interactions especially for older students. Moreover, the constant proximity of a support may inadvertently hinder the extent to which the student feels integrated in the school, community, or employment context (Carter et al., 2008). This has lasting implications for the workplace setting in which employers typically expect employees to remain engaged on their

task while conversing fluently with co-workers and customers without relying on the proximal support of a job coach (e.g., Gilson & Carter, 2016).

Third, although there are limited data to support this, these findings suggest the impact of VBI is likely to maintain after the intervention ends and may be applicable to community-based settings. While receiving VBI at school, students demonstrated their ERSB at similar levels when practicing similar skills at the hospital. Since students did not begin visiting the hospital weekly until after two students had already started VBI, I am unable to compare generalization probes during the baseline and VBI phases. Additionally, students rotated tasks at the hospital rather than focusing on one singular activity as they did at school (i.e., supply cart). However, regardless of which tasks students were assigned at the hospital (e.g., operating hospitality cart, cleaning cafeteria), I anecdotally noticed they tended to capitalize on opportunities for social interaction with more comfort and fluidity when navigating unfamiliar settings. Maintenance data collected one month following the end of VBI for all students indicate the levels of ERSB acquired during VBI can be sustained for an extended period after the intervention ends.

Fourth, feedback from staff and student participants affirm the acceptability and social validity of VBI in a high school transition setting. Staff members generally felt satisfied with the training they received, felt effective in their role, and noted they would continue to use the new strategies. They considered it a beneficial tool that did not distract students from their job performance. The teacher indicated the intervention allowed her to access a “completely new way of teaching” and she planned to create new videos to teach different social skills in the future. Additionally, all students reported they enjoyed watching the videos, believed they helped them do their job better, and would like to watch similar videos to help them learn new things. The social validity affirmed by students and staff acknowledges VBI as a promising pathway that

can be readily adapted and applied by practitioners to teach students with severe ID a wide domain of skills.

Implications for Practice

Results from this study support the notion that social skills instruction should be intertwined within employment skills instruction in high school transition programs for students with severe ID. Several important implications can help shape how teachers, paraprofessionals, and other direct support staff use VBI to embed social skills naturally within a school or employment context.

First, VBI is a practical and feasible intervention to teach individualized ERSB to students with severe ID. Both staff and students reported a positive experience with the intervention. Although the task of individualizing social skills to fit the needs of each student may initially seem daunting, the process can be manageable and easily replicable across students. By completing a social skills inventory to assess current need (see Appendix A), teachers can generate a list of 2-3 targeted items for explicit instruction and create video clips designed each student. With the growing availability of technology, VBI can now be supported across platforms and devices, such as tablets, smartphones, or laptops. In addition to Oneder, many low-cost or free apps are available to film and edit videos with little to no prior experience (e.g., VivaVideo, Splice, Video Scheduler). Technology-based interventions provide an innovative means to foster ERSB in a salient and unobtrusive way.

Second, self-regulation is a promising way to help secondary students with ID acquire new social skills (e.g., Maione & Mirenda, 2006; Van Laarhoven et al., 2014). Students and staff alike reported students felt more confident when they were aware of their goals and were expected to reflect on them before and after each task procedure. The inclusion of self-regulation

before and after the basic process of watching models and performing the task procedure helped students to develop a predictable pattern of what a successful sequence entailed (Schunk & Zimmerman, 2007). Teachers could embed self-regulation into their employment skills instruction by adding a reflective component before and after practicing a new skill.

Third, although all the students indicated in their transition surveys prior to the start of VBI a desire to work in an integrated employment setting, most (except for Jeffrey) did not report a specific interest in selling goods. However, the primary context for employment skills instruction was a supply cart, which they were responsible for stocking, managing, and driving as a means of simulating a small business. Although there were some transferable skills acquired from this task, the narrow focus on this one venue of employment simulation highlights a missed opportunity for school staff to cater to the needs and interests of their students. Calli expressed interest in working at a police station, Eliza wanted to work at a nursing home, Cameron was interested in the automotive industry, and Bethany hoped to work with children at a day care. It is unclear the extent to which the school staff sought to individualize the employment instruction to align with the aspirations of each student. Transition teachers should not only conduct these interest surveys but also find ways to design instructional practices that simulate jobs related to their students' interests.

Limitations and Implications for Future Research

Several limitations to this study offer avenues for future research. First, VBI was designed as an intervention package comprising multiple components, including (1) video models as a vehicle of individualized social instruction, (2) reduced staff member proximity throughout the task procedure, and (3) self-regulation via pre- and post-procedure reflection processes facilitated by the staff member. Although this combination was by design, the

simultaneous implementation of each component does not allow me to determine which of these may have contributed more to the increases in employment-related social behaviors. The lack of comparison designs is prevalent in this literature (Gilson et al., in press) and limits the extent to which the field can draw conclusions about which specific components of these interventions are most salient to deliver to students with ID in school and workplace settings. Future researchers should design a study in which a social intervention package can be deconstructed with a staggered release of its primary components to allow for individual comparisons across phases.

Second, although one strength of this study was each student's individualized dependent measure, the dyadic structure of the supply cart activity made it difficult to cater some aspects of the intervention to each student. For example, the task procedure was conducted with one staff member assigned to two students, which restricted the staff member's ability to exhibit procedural fidelity (i.e., reduced proximity) due to the need to assist a nearby classmate. Future studies aiming to individualize the dependent measure should also ensure that all components of the intervention can be tailored as well.

Third, although the students had the opportunity to apply these new skills in a community setting, the hospital placement did not begin until the middle of the semester when two of the students were already receiving VBI. Additionally, students rotated task groups on a weekly basis at the hospital, which means that students only had the opportunity to practice the most functionally similar skill to that taught in the school setting (i.e., operating a snack and supply cart) every third week. These barriers challenged the extent to which I can answer the third research question about whether students' ERSB would transfer to a community setting. Understanding the extent to which employment skills taught in school settings transfer to community settings is vital to fulfilling the expectation that these skills can and will transfer to a

workplace setting (Canella-Malone & Schaefer, 2015; Gilson et al., in press). Future researchers should be thoughtful when incorporating a community-based generalization component to ensure that the scheduling and task procedures mirror closely those introduced in the school setting.

Conclusion

Although high school students with severe intellectual disability aspire to attain integrated employment, the employment rates for this population are abysmally low. Proficiency in employment-related social behaviors is integral to the success of attaining and retaining meaningful employment upon completion of high school. This study aimed to strengthen employment-related social behaviors for five students with severe ID. Video-based instruction offered an avenue for a technology-based intervention emphasizing individualization, self-regulation, and generalization. My findings demonstrated VBI as an effective tool to teach ERSB and maintain high task engagement for five students with severe ID during an employment-related activity. Even though the generalization measure was limited in scope, data suggest ERSB could be readily transferred across settings to the community and workplace. Furthermore, VBI is an easy-to-implement tool for teachers and practitioners to develop critical employment skills in a natural context with a lasting impact.

APPENDIX A

Student name: _____

Teacher name: _____

Date: _____

Completed by: _____

	Very poorly	Somewhat poorly	Somewhat well	Very well	Unsure
Work-production related behaviors					
Carrying out instructions that need immediate attention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completing quality work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working well without the close supervision of others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solving routine work-related problems without help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding necessary information prior to performing the job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working well under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working at the speed expected by the supervisor/teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working at a job continuously without getting distracted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performing job responsibilities without having to be asked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Responding appropriately to job-related emergencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Showing initiative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solving problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task-related social behaviors					
Working together with others as a member of a team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accepting help from co-workers/peers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asking a supervisor/teacher for assistance when needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeking clarification for unclear instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaking appropriately to a supervisor/teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offering to help co-workers or customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asking for an explanation when instructions are unclear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Referring questions to others when unsure of the answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asking a co-worker/peer for assistance when needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Following directions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding necessary information prior to starting a job task	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accepting constructive criticism without getting angry or upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Talking about job frustrations with a supervisor/teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-task-related social behaviors					
Refraining from swearing or using objectionable language and gestures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Making friends with co-workers/peers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interacting well with strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening to the other person in a conversation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acknowledging what others are saying (e.g., eye contact, nodding)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaking in an appropriate tone of voice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making appropriate eye contact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using polite language (e.g., thank you, please)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining appropriate affect most of the time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Expressing appreciation to co-workers/peers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Responding appropriately to joking or teasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disagreeing with co-workers/peers without arguing or yelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refraining from interrupting others at inappropriate times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refraining from inappropriate touching of others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avoiding complaining too much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offering compliments to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discussing personal problems only in appropriate situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Starting conversations with co-workers about non-work topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General work behaviors					
Maintaining good personal hygiene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Requesting days off of work from the supervisor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Returning from break or lunch on time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arriving to work on time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taking responsibility for own actions at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calling in to work when sick or running late	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accepting responsibility when work is missed or incorrect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dressing appropriately for the job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accepting unexpected schedule changes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other					
Write-in: <i>Ability to imitate behavior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Write-in: <i>Responding to stepwise prompting</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Write-in: <i>Retaining new information</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Write-in: <i>Interacting with technology</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Write-in: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments					

Note. Inventory adapted from measurement tools created by: Agran, Hughes, Thoma, & Scott (2016); Carter & Wehby (2003).

APPENDIX B

Purpose of the Project

The purpose of this project is to examine the effectiveness of video-based instruction (VBI) on the employment-related social behaviors and independent task engagement of high school students with intellectual and developmental disabilities (IDD) in school and community settings.

Experimental Procedures

This study will employ a multiple-probe-across-students design. Data collection will begin with baseline in the school and community settings. Paraprofessionals will be instructed to support students in employment skills instruction as they typically would in their daily routines, including providing social and task development as needed.

The students and paraprofessionals will then receive pre-training on how to use the Oneder device to access video-based instruction. The pre-training will include examples of instructional videos of similar but different tasks than the students will focus on in the intervention phase. Paraprofessionals will also receive specific training on how to coach students to watch the video-based instruction targeted to each student's three employment-related social behaviors. After the students have shown stable levels in the baseline phase and demonstrated proficiency with the Oneder device, the intervention phase will begin. This will entail using Oneder as the primary form of instructional support, unless the paraprofessional is needed to provide assistance if a student is unable to perform the task independently.

Type of Recording Systems

Observations will be conducted using a paper/pencil recording system, using partial interval and momentary time sampling procedures. In momentary time sample, data will be collected on independent task engagement and proximity to paraprofessional, teacher, classmate (i.e., student with an IEP in special education setting), peer (i.e., student outside of special education setting), or other people. In the partial interval, data will be collected on the occurrence of each employment-related social behavior.

Each observational interval will last 30 seconds, with 30 total intervals lasting 15 minutes per session. Each session requires a new data sheet.

The data collection sheet will be the same in both the school and community setting, *except* for the persons listed in available proximity (see below).

Momentary Time Sample

Data collector will observe at the first second each interval and record measures occurring in that "snapshot" of a moment.

Independent Task Engagement

Operational Definitions:

- **Engaged (EN):** student is focused on performing a specific task/expectation that was most recently given by the paraprofessional, teacher, or supervisor (if applicable)
 - Examples:
 - Student is sweeping floor when instructions given were to sweep the floor.
 - Student is listening to teacher give instructions on upcoming task.
 - Student is waiting for paraprofessional to provide proper equipment needed to complete task (e.g., scissors, gloves).
- **Unengaged (UN):** student is **not focused** on performing specific task that has been explicitly given or determined as a previously set job expectation by the paraprofessional, teacher, or supervisor; this could be because the task has already been completed or because the student is choosing not to perform the task
 - Examples:
 - Student is talking or texting on phone during or after a task is given before it is completed.

- Student has finished folding shirts and is sitting at the table waiting for new instructions but supervisor is out of sight.
 - Student is discussing a social topic and is not completing the task.
 - Non-examples:
 - Student is talking to a classmate but is still able to stay focused on the given task (e.g., folding T-shirts while talking to a co-worker who is also folding shirts).
- **No task (NT):** no expectation is held (as either explicitly stated by a paraprofessional, teacher, or supervisor or as evident in previously stated responsibilities) that work is to be performed in this particular time
 - Examples:
 - Student is on a formal break (e.g., lunch break, 2 min bathroom break)
 - The shift or class is either just about to start or has just ended.

Proximity Measures

Operational Definitions:

- **Proximity:** body orientation, distance, and position of the student and other person that allows easy access for interaction with student (i.e., **no more than 5 feet**)
- **Circle all who are in proximity during the momentary time sample:**
- **School proximity: Paraprofessional, Teacher, Classmate, Peer, or Other.**
 - **Paraprofessional:** the person assigned to support the student in completion of the task
 - **Teacher:** the special education teacher who is the teacher of record for the student during the time of employment skills instruction
 - **Classmate:** a student who is in the same class as the focus student (i.e., also has an IEP and receives special education services)
 - **Peer:** a student who attends the same high school as the focus student but is not in the same special education class
 - **Other:** anyone who does not fall into any of the above classifications (e.g., general education teacher, administrator, school visitor)
- **Community proximity: Paraprofessional, Teacher, Classmate, Co-Worker, Supervisor, or Other.**
 - **Paraprofessional:** the person assigned to support the student in completion of the task
 - **Teacher:** the special education teacher who is the teacher of record for the student during the time of employment skills instruction
 - **Classmate:** a student who is in the same class as the focus student (i.e., also has an IEP and receives special education services)
 - **Co-Worker:** someone who is employed at the community-based employment setting in which the student is working but is not the student's supervisor
 - **Supervisor:** the person or persons in charge of overseeing the student while at the community-based employment setting and is responsible for managing and directing job tasks and responsibilities
 - **Other:** anyone who does not fall into any of the above classifications (e.g., patient at the hospital, someone visiting the hospital)
- **Examples of proximity:**
 - Student is sitting next to co-worker at library desk.
 - Student is working alongside supervisor who is overseeing the task.
 - Student is working with a group of others who are performing the same tasks (e.g., washing dishes).
 - Students and/or customers walk by the job setting that would allow the opportunity for the student to greet or smile at them.

- Job coach is standing next to the student coaching him or her through a specific task.
- **Non-examples of proximity:**
 - Student is working alone on a task in a field.
 - Student is sitting with back or body faced away from co-workers.
 - Student is sitting next to a co-worker who is wearing headphones.

Partial Interval Sampling Procedure

Observers will record ongoing data during the same interval in which they see the behavior. That is, as you see a social interaction occur, you should circle the box corresponding to the time in which the behavior occurred. If no interaction occurred during the interval, leave the entire box blank. **Note: Social interactions with the paraprofessionals or teachers will not be coded.**

Social Interactions & Employment-Related Social Behaviors

Operational Definitions:

Each student will be assigned three target employment-related social behaviors (ERSB). These target behaviors will be used to determine what constitutes a social interaction for each participant. Social interaction is indicated on the coding sheet when the student exhibits AT LEAST ONE of their individualized ERSB.

The definitions of social interactions are defined below for each participant based on the ERSB selected in consultation with their teachers. The numbers only reflect the order in which they appear on the data sheet and serve no other purpose in priority or emphasis.

Calli:

- (1) **Initiate conversation verbally:** student begins talking first to introduce a conversation with someone (must be verbal – not a wave or gestural signal).
- (2) **Verbally acknowledge other in a conversation:** student provides a verbal volley that was clearly in response to something someone else said to her (must be verbal – not a wave or gestural signal)
- (3) **Non-verbally acknowledge other in a conversation:** student provides a non-verbal signal that addresses someone in proximity or someone already involved in a conversation with her (e.g., eye contact, head nodding yes or shaking no, waving hello or goodbye)

Eliza:

- (1) **Initiate conversation verbally:** student begins talking first to introduce a conversation with someone (must be verbal – not a wave or gestural signal).
- (2) **Talk to someone while staying focused on the task assigned:** student initiates or responds to someone verbally while continuing to do the task assigned (i.e., multi-task). Examples include her talking while still being *engaged* in task appropriate behavior.

SPECIFIC EXAMPLES:

- She says hello to a peer in the hallway while still continuing to push the supply cart (i.e., not stopping to chat).
 - She asks a teacher what type of snack they want while taking money from him and putting it in the cash box or giving correct change (i.e., not pausing to talk or pausing to take the money).
- (3) **Ask for help when needed:** she asks for help from someone else when needing assistance during the task procedure

SPECIFIC EXAMPLES:

- A teacher asks for an item on the supply cart she does not recognize (e.g., dry erase marker rather than Expo marker) and she asks the teacher for help identifying the item.

- She cannot find the room number of a teacher she is supposed to be visiting, so she asks for help locating it.

Jeffrey:

- (1) **Ask for help when needed:** he asks for help from someone else when needing assistance during the task procedure

SPECIFIC EXAMPLES:

- A teacher asks for an item on the supply cart he does not recognize (e.g., dry erase marker rather than Expo marker) and he asks the teacher for help identifying the item.
 - He cannot find the room number of a teacher he is supposed to be visiting, so he asks for help locating it.
- (2) **Respond appropriately to directions on a social-related task:** he responds to a social-related direction given by the teacher or paraprofessional but intended for application with someone else. For example, if the paraprofessional says, “Don’t forget to ask her about her weekend” before entering the classroom, it would be coded *independent* if he does this at some point during the conversation without requiring further assistance. It would be coded *assisted* if the paraprofessional steps in to whisper something in his ear to remind him to do or say something in the moment while the interaction is still taking place.
 - (3) **Initiate the end of a conversation appropriately:** he says “thank you” or “bye” to someone before exiting the conversation (i.e., does not just walk out of the room without saying anything). This is only coded when he initiates and would not be coded if someone else says bye first and he responds with bye.

Cameron:

- (1) **Initiate conversation verbally:** student begins talking first to introduce a conversation with someone (must be verbal – not a wave or gestural signal).
- (2) **Listen attentively in a conversation:** student waits for his turn to speak in a conversation before responding (i.e., does not interrupt when someone else is speaking or asking him a question)
- (3) **Non-verbally acknowledge other in a conversation:** student provides a non-verbal signal that addresses someone in proximity or someone already involved in a conversation with him (e.g., eye contact, head nodding yes or shaking no, waving hello or goodbye). *Note: This is often coded with ERSB #2 but may be coded individually if the student uses a non-verbal signal while he is talking rather than while he is listening.*

Bethany:

- (1) **Ask for help when needed:** she asks for help from someone else when needing assistance during the task procedure

SPECIFIC EXAMPLES:

- A teacher asks for an item on the supply cart she does not recognize (e.g., dry erase marker rather than Expo marker) and she asks the teacher for help identifying the item.
 - She cannot find the room number of a teacher she is supposed to be visiting, so she asks for help locating it.
- (2) **Verbally acknowledge other in a conversation:** student provides a verbal volley that was clearly in response to something someone else said to her (must be verbal – not a wave or gestural signal)
 - (3) **Non-verbally acknowledge other in a conversation:** student provides a non-verbal signal that addresses someone in proximity or someone already involved in a conversation with her (e.g., eye contact, head nodding yes or shaking no, waving hello or goodbye)

For each behavior, observers will record one of two options. **If no behaviors occurred during this interval, the entire box should be left blank.**

- **Independent (I):** student completes the target behavior without the assistance of anyone else

Examples:

- Student asks peer, “Would you like to purchase a candy bar?” and initiates transaction and tenders money without having paraprofessional intervention.
- Paraprofessional is in proximity, but student still initiates and executes transaction without any physical or verbal prompting from the paraprofessional.

- **Assisted:** student completes the target behavior with the help of a paraprofessional or teacher

Examples:

- Student asks peer, “Would you like to purchase a candy bar?” and paraprofessional helps the student select the candy bar and tender the money.
- Student takes too long to respond to a peer’s question and paraprofessional thinks he is “stuck” so she enters proximity and prompts student on how to respond.
-

At the end of each 15-minute observation, observers will total the overall number of items circled for each measure and calculate the percentage by dividing the number of each measure by 30 and multiplying by 100.

APPENDIX C

Student Code: **CB**

Setting: _____

Date: _____ Start Time: _____

Primary observer: _____

IOA observer: _____

Total number of people in setting

Before the session: _____ | Para: _____ | Teacher: _____ | Classmate: _____ | Peer: _____ | Other: _____

After the session: _____ | Para: _____ | Teacher: _____ | Classmate: _____ | Peer: _____ | Other: _____

		Momentary Time Sample: Observe at the beginning of each interval and circle...			Partial Interval: Observe throughout the interval and record at the end of each interval...									
					Employment-Related Social Behaviors (ERSB)									
INT	Time Elapsed	Ind. Task Engagement	Proximity		Social Interaction with Classmate		Social Interaction with Anyone Else		ERSB 1: Initiate	ERSB 2: Verbally acknowledge others	ERSB 3: Non-verbally acknowledge others (e.g., touch)	NOTES (quality, appropriateness) – complete if one ERSB is unchecked		
1 L	0:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
1 H	0:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
2 L	1:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
2 H	1:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
3 L	2:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
3 H	2:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
4 L	3:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
4 H	3:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
5 L	4:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
5 H	4:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
6 L	5:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
6 H	5:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
7 L	6:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
7 H	6:30	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	
8 L	7:00	EN <small>Engaged</small>	UN <small>Unengaged</small>	NT <small>No</small>	Para / Teacher / Classmate / Peer / Other		I <small>Independent</small>	A <small>Assisted</small>	I <small>Independent</small>	A <small>Assisted</small>	✓	✓	✓	

		Momentary Time Sample: Observe at the beginning of each interval and circle...						Partial Interval: Observe throughout the interval and record at the end of each interval...							
								Employment-Related Social Behaviors (ERSB)							
INT	Time Elapsed	Ind. Task Engagement			Proximity			Social Interaction with Classmate		Social Interaction with Anyone Else		ERSB 1: Initiate conversation	ERSB 2: Verbally acknowledge others (e.g., yes, no)	ERSB 3: Non-verbally acknowledge others (e.g., eye contact)	NOTES (quality, appropriateness) – complete if one ERSB is unchecked
		EN	UN	NT				I	A	I	A				
		<small>Engaged</small>	<small>Unengaged</small>	<small>No Task</small>				<small>Independent</small>	<small>Assisted</small>	<small>Independent</small>	<small>Assisted</small>				
8 H	7:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
9 L	8:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
9 H	8:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
10 L	9:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
10 H	9:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
11 L	10:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
11 H	10:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
12 L	11:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
12 H	11:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
13 L	12:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
13 H	12:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
14 L	13:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
14 H	13:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
15 L	14:00	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
15 H	14:30	EN	UN	NT	Para / Teacher / Classmate / Peer / Other			I	A	I	A	✓	✓	✓	
TOTAL															
%															

Job tasks:

Any comments?

APPENDIX D

Observer Fidelity Checklist

Student ID Code: _____

Staff code: _____

Primary/ IOA Observers: _____/_____

Date: _____

Indicate which of the following strategies the paraprofessional used BEFORE THE TASK PROCEDURE:

Paraprofessional Assistance and Support Behaviors	
<input type="checkbox"/>	Show video to student or give the student the VBI device.
<input type="checkbox"/>	Take away the device after the student has watched all of the videos.
<input type="checkbox"/>	Prompt the student to begin the task procedure by saying, "OK, go to work."
<input type="checkbox"/>	Stand outside of proximity but still in visible distance of the student to assist if needed.
<input type="checkbox"/>	Other: _____

Indicate which of the following strategies the paraprofessional used DURING THE TASK PROCEDURE:

Paraprofessional Assistance and Support Behaviors	
<input type="checkbox"/>	Stand outside of proximity but still in visible distance of the student to assist if needed.
<input type="checkbox"/>	Provide assistance if needed (i.e., if student pauses for 10 s during the task procedure).
<input type="checkbox"/>	Give advice or information to support the next step of the task procedure if needed (i.e., if student pauses for 10 s during the task procedure).
<input type="checkbox"/>	Other: _____

Indicate which of the following strategies the paraprofessional used AFTER THE TASK PROCEDURE:

Paraprofessional Assistance and Support Behaviors	
<input type="checkbox"/>	Return to proximity (i.e., 5 feet or less) of the student.
<input type="checkbox"/>	Give student device and show them all videos again.
<input type="checkbox"/>	Ask the student to self-reflect on their performance in the task procedure based on what they saw in the videos.
<input type="checkbox"/>	Praise the student's performance in the task procedure.
<input type="checkbox"/>	Give constructive feedback or advice to the student about how they can improve if needed.
<input type="checkbox"/>	Help the student come up with a plan for how they will act differently next time they complete this task procedure.
<input type="checkbox"/>	Other: _____

Did the paraprofessional ask the student to complete the self-reflection steps on the Oneder device?

- Yes
- No
- Unclear

Did the paraprofessional offer the student a reinforcement activity after the task debrief and reflection?

- Yes
- No
- Unclear

APPENDIX E

Student Feedback Survey

Name: _____ **Teacher:** _____

Thank you for participating in this project! We want to know your thoughts about the videos you watched this semester to help you improve your social skills. Please read each of the following statements and circle the answer that best reflects your views.

1. I liked watching the videos before doing my job.
Yes / No / I don't know
2. I think the videos helped me do my job better.
Yes / No / I don't know
3. I would like to watch more videos like this to learn new things.
Yes / No / I don't know
4. I would like to work and interact with other people in my future job.
Yes / No / I don't know
5. What did you like about the videos you watched to help you work on social skills?
6. What did you not like about these videos?

Thank you for taking the time to complete this questionnaire and for participating in this project!

APPENDIX F

Paraprofessional/Teacher Feedback Survey

Name: _____

Teacher: _____

Thank you for participating in this project! We want to know your thoughts about facilitating the video-based instruction this semester. Please read each of the following statements and circle the answer that best reflects your views. This information will help us improve the project experience for the future.

- | | |
|---|--|
| 1. The training I received was practical and reasonable. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 2. I feel that this is an effective addition to traditional job coaching. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 3. I felt effective in my role as a coach. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 4. I felt prepared to assist students with the videos. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 5. The videos were helpful for my students. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 6. It was easy to step away from the student during task procedures. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 7. I think independence is an important part of job success. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 8. I think social integration is an important part of job success. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 9. This type of intervention fit well in the workplace setting. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 10. My students benefitted <i>socially</i> from this intervention. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 11. My students' job independence increased from this intervention. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 12. I will continue to use these strategies after the study ends. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |
| 13. My students enjoyed receiving this intervention. | Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree |

APPENDIX G

Onder Student Reflection Guide

Student name:
initial:

Date:

Staff

Write any notes you observed about the student during the task procedure:

How did the student evaluate his or her performance during the task procedure compared with the video models?

- "Yes, I did it."
- "Yes, I did it but I could have done better."
- "No, I did not do it."
- Unsure

How did YOU evaluate the student's performance during the task procedure compared with the video models?

- "Yes, I did it."
- "Yes, I did it but I could have done better."
- "No, I did not do it."
- Unsure

Indicate any action steps or areas of focus you and the student have planned for next time:

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