Promoting Employee Handbook Comprehension for Postsecondary Students with Intellectual Disability and Autism Spectrum Disorders

Stephanie M. Devine[1]
Joshua N. Baker[1]
K. Ryan Wennerlind[1]
Mona Nasir-TuckTuck[1]

Abstract

The ability to read is an essential part of an independent life in our society. Individuals with Intellectual Disability (ID) and Autism Spectrums Disorders (ASD) often struggle with learning to read; therefore, discovering strategies to build literacy skills is essential to their success in employment and independence. A multiple probe across participants design was used to investigate the effects of an adapted employee handbook paired with systematic prompting on text comprehension with postsecondary students with mild to moderate ID and ASD. This investigation involved three young adults with ID and ASD attending a postsecondary education program. The results demonstrated a significant increase in the ability of all three students to answer comprehension questions based on an adapted employee handbook compared to baseline, which did not include the systematic prompting or graphic organizer. After intervention, all three participants were able to maintain improved comprehension levels in the maintenance phase. The findings suggest this to be an effective practice for improving literacy skills and access to important functional texts such as employee handbooks for young adults with ID. The results of this study could be generalized to a number of disability service providers. Practical application and future research are also discussed.

Keywords: Postsecondary students, adapted text, autism spectrums disorders, intellectual disabilities, transition

Competitive employment rates for individuals with intellectual disabilities (ID) and autism spectrum disorders (ASD) are much lower than for those without disabilities (Human Services Research Institute, 2012). The Arc (2011) supported Family and Individual Needs for Disability Supports (FINDS) survey reported that 85% of people with ID were not working. Those with ID and ASD who are employed make less money, are underemployed, have lower job skills, higher poverty rates, and fewer employment benefits (Stodden & Dowrick, 2000; U.S. Senate Committee for Health, Education, Labor and Pensions, 2011; Wagner, Cameto, & Newman, 2003). Access to and continued success in employment is extremely difficult for this population. Individuals with ID and ASD historically are not as successful as their nondisabled peers when it comes to transitioning to a quality adult life, especially because of their low literacy rates (Bradford, Shippen, Alberto, Houchins, & Flores, 2006; Houston & Torgesen, 2004). A multitude of problems stem from these low literacy skills, including individuals with low-incidence disabilities such as developmental disabilities, ID, or ASD having the lowest rates of employment (U.S. Department of Education, 2009) and the resulting economic hardship and overall concern with health and wellness.

There are many skills and indicators necessary for employment success. High amongst those skills is literacy (Conceição, 2016). Literacy skills are essential to acquiring knowledge to build the critical thinking skills needed for employment (Levy & Murnane, 2006); however, achieving the complex skill of literacy is very difficult for those with ID and ASD. Because high school and post-high school students with ID and ASD have significantly limited literacy skills, including reading levels at or below second grade,

[1] *University of Nevada, Las Vegas*

access to important informational texts that may affect their quality of life, including employment, is extremely limited (Katims, 2000). One such example of this is accessing and understanding employee handbooks or manuals.

Although many may not spend a lot of time reading through them, employee handbooks are the collection of the essential policies, procedures, focus, and goals of a company. The U.S. Small Business Administration (n.d.) recommended that companies provide handbooks to ensure that all employees understand the expectations of employers. This is also where employers list the required information from the U.S. Department of Labor such as safety statements and guidelines, break and leave policies, and much more. Employee handbooks are an important piece of text for all employees to understand to facilitate workplace success. Oftentimes, these texts are written at very high reading levels and can be very difficult to understand for many readers.

To build more accessible employee handbooks, it is important to embed what is known about literacy and students with ID and ASD. Literacy instruction for this population has only recently been focused on more comprehensive instruction (Allor, Mathes, Roberts, Cheatham, & Otaiba, 2014; Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006; Courtade, Lingo, & Whitney, 2013; Mims, Hudson, & Browder, 2012). Prior to that, the focus of literacy instruction was primarily on sight word recognition (Browder, Ahlgrim-Delzell, Courtade-Little, & Snell, 2006). If comprehensive literacy instruction practices have only recently been available, young adults of employable age most likely only had sight-word instruction and therefore continue to have limited literacy skills. Despite the challenges that go along with teaching students with ID and ASD to read and comprehend a text, the ability to read is an essential part of an independent life in our society; therefore, discovering strategies and methods that are effective in building those literacy skills for individuals with ID and ASD is essential to success in employment and independence.

A review of the research on the effective literacy instruction of individuals with ID and ASD in secondary or postsecondary programs revealed a focus on adapted texts combined with the use of pictures, shared stories, and systematic prompting incorporated within tablet technology such as an iPad® (Browder, Wakeman, et al., 2006; Evmenova, Behrmann, Mastropieri, Baker, & Graff, 2011; Lemons, Allor, Al Otaiba, & LeJeune, 2016). In addition, shared stories or read alouds, are often used as a component of a more comprehensive program that incorporated systematic prompting, were shown to be an effective method to build comprehension and engagement of individuals with ID and ASD (Allor et al., 2014; Browder, Mims, Spooner, Ahlgrim-Delzell, & Lee, 2008; Shurr & Taber-Doughty, 2012; Solis, El Zein, Vaughn, McCulley, & Falcomata, 2015). Systematic instruction, including an explicit prompting system and graphic organizers to aid students in text analysis and comprehension, has also been an effective method for building literacy skills for individuals with ID and ASD (Browder, Hudson, & Wood, 2013; Mims et al., 2012; Mims, Lee, Browder, Zakas, & Flynn, 2012; Ozmen, 2011). The use of texts adapted from the general education curriculum has successfully provided access to grade-level text for students with ID and ASD in elementary and middle school (Browder et al., 2008; Coyne, Pisha, Dalton, Zeph, & Smith, 2012; Knight, Wood, Spooner, Browder, & O'Brien, 2015; Spooner, Kemp-Inman, Ahlgrim-Delzell, Wood, & Ley Davis, 2015; Spooner, Rivera, Browder, Baker, & Salas, 2009). Browder et al. (2008) and Coyne et al. (2012) also paired this concept of adapted texts with the principles of Universal Design for Learning (UDL) for their studies. Technology has provided teachers with an accessible tool to adapt text and pair it with pictures, videos, read aloud, and comprehension checkpoints to aide in instruction. The use of e-readers in research has shown that students increase their engagement and participation in the text when using this technology (Coyne et al., 2012; Douglas, Ayres, Langone, Bell, & Meade, 2009). Using portable electronic devices to provide instruction has been successful for individuals with a variety of disabilities because of its simplicity and built-in accessibility tools (Kim, Blair, & Lim, 2014; Knight et al., 2015).

These elements have previously demonstrated success in building literacy skills for elementary and middle-school aged individuals with ID and ASD in the areas of school-based texts. Very little research has been done on building literacy skills for young adults with ID and ASD. This study was designed to extend the research for the use of combining read aloud, text adaptation, technology, graphic organizers, and systematic instruction to build the text comprehension for postsecondary-aged students with ID and ASD. For the purposes of this study and to assist postsecondary students with ID and ASD in their transition to the workplace, the researchers adapted an employee handbook and incorporated a systematic instruction literacy package to not only make the text more accessible to low-level readers, but to also teach text comprehension skills to individuals using functional, real-world texts.

Mims et al. (2012) adapted grade-level biographies for middle school students with moderate to significant ID. This pilot study expands on the findings of Mims et al. by focusing on transition-aged students (aged 18 to 22) participating in a postsecondary program for students with mild to moderate ID and ASD, and using adapted employee manuals as texts. It was hypothesized that developing an accessible employee manual and providing skill instruction in building comprehension of text will expose individuals with low literacy skills to a useful system to build understanding of employer procedures and expectations, which may promote greater on-the-job success. More specifically, the purpose of this pilot study was to evaluate the effects of a read aloud of an adapted employee handbook combined with a systematic-instruction-based literacy treatment package to the text comprehension of young adults with ID and ASD.

Method

A multiple-probe across participants design was used to examine the effects of a systematic instruction-based literacy package on the comprehension of an adapted employee handbook read aloud. The multiple-probe was used because the collection of continuous baseline data did not seem necessary and reactive (Horner & Baer, 1978). For example, although the participants could answer some of the baseline questions, they could have become frustrated being asked the same questions each day without any instruction. The probe allowed the researcher to ensure the data were stable without causing frustration. The following section outlines the process of participant selection and inclusion, the setting, and the procedures involved in the study.

Participants

Three participants were selected from a convenience sample gathered from an inclusive postsecondary education program for individuals with moderate intellectual and/or developmental disabilities, ages 18 to 22, from a university in the southwestern United States. The inclusion criteria for participants required that: (a) adult students (e.g., they did not have a guardian) signed consent for participation; (b) students were part of a postsecondary program for individuals with intellectual or developmental disability to attend university; (c) students were able to communicate verbally; (d) students were able to select one item from a series by pointing or speaking; and (e) students had acceptable attendance (i.e., no more than five absences in the previous quarter). Since each student was his or her own guardian the reliability of each student's voluntary consent to participate in a research study was assessed every data collection session. For example, Charles was asked each day if he would like to participate and was ensured that his participation was voluntary.

Brenda. Brenda was a 19-year-old, White female with autism. She was in her second year at the university's inclusive postsecondary program for individuals with ID and ASD. Brenda was able to express herself verbally, but was very literal in her conversation with others. Brenda had mild hearing loss and wore hearing aids for support. She had worked with children in the past and was interested in working with children in the future. At the time of the study, Brenda was an intern at the university preschool where she completed a number of workplace tasks. At preintervention assessment, she was able to read the employee handbook independently, but she was not able to answer more than 5 of the 10 comprehension questions correctly.

Charles. Charles was a 20-year-old, White male with Down Syndrome in his second year at the university's postsecondary program. Charles communicated verbally and was social with friends and classmates but at times, he was difficult to understand. Charles had mild hearing loss but did not wear hearing aids for support; however, this did not negatively affect his ability to interact with others. Charles was able to express his wants and desires effectively and he had expressed an interest in working at the university preschool. At the time of the study he was interning with the university athletic department. He was not able to read the employee handbook independently at preintervention assessment.

Adam. Adam was a 19-year-old, White male with autism and was in his first year of the university's postsecondary program. He was verbal but often used a high, child-like tone in his communication. Adam was less social than other students in the postsecondary education program but this did not affect his ability to communicate his wants and desires with others. Adam had listed the preschool as a possible internship placement interest. Adam was able to read the employee handbook at preintervention assessment, but he only answered 4 of the 10 comprehension questions correctly.

Setting

The intervention took place in a one-on-one setting at a small table in the first author's university office. This was the same location other university students would meet with the first author for supports for courses they were taking. The office was located

across from the main office of the department and a large classroom so there was a lot of student traffic crossing through the hallway. The instruction took place during convenient break periods for each participant. Each student would normally be relaxing in another office or at the library during these periods. Implementation of the study was completed by a full-time doctoral student and instructor at the university who was also a licensed special education teacher with an endorsement in ID and seven years of experience working with students with intellectual and developmental disabilities.

Participants sat next to the interventionist with the iPad on a stand placed on a desk in between them. The graphic organizer was placed in front of the participant during the session. The office door remained open during interventions.

Materials

Materials included in this study were the adapted employee handbook from the university preschool, an iPad Air 2®, a picture-based graphic organizer, and data collection sheets. An Apple desktop computer installed with iBook Author® was used to develop the adapted handbook. The handbook was then uploaded as an iBook® into the iPad® for the student participants to view.

Employee handbook. One of the participants was working at the university preschool and the other two students were interested in interning at the preschool site so the employee handbook from the preschool was selected for this pilot study. A general section of this employee handbook was adapted to use in this study. The handbook was extensive, so the section that pertained most to students' daily duties and job requirements was chosen for this intervention. To ensure content validity, the adapted handbook was developed by the first author from the original handbook and then reviewed by two experts: a university professor whose specialty was working with individuals with ID as well as a representative of the job site. They reviewed the adapted handbook text for accuracy and to determine whether the adaptation represented the heart of the content of the original work. Adjustments were made to the handbook based on their suggestions.

Comprehension questions. The comprehension questions were designed to replicate a portion of the Mims et al. (2012) study and included nine "Wh" questions, such as who, what, where, when, and why; as well as one how question. As sequencing (e.g., first, next, and last) was not really embedded within the information provided in the text, this element from Mims et al.'s study design was not included. The questions were placed throughout the text to reflect what was happening in that portion of the piece (see Table 1 for a list of the questions). Following a page of adapted text, a question with a choice of four responses (one correct answer and three distractors) was given.

Text. The adapted text was built using iBooks Author® and included pictures that aligned with the text content. There were a total of 10 text pages, each followed by a question page. The answers included the appropriate response as well as three distractor answers that were related to the question (e.g., if the question was about a place or setting, all of the answers were places or settings). Most of the answer pictures were within the text of that page so the participant did not simply match the picture with the only choice on the page. If that was not feasible, pictures that were not used on the text page were used for the comprehension question page. The answers were listed in text and then aligned with related pictures. The placement of the correct answer varied from page to page. Three versions of the handbook were created that varied the page order as well as the answer order to avoid response error associated with the participant choosing the same answer location. The version used for each intervention session was randomly selected at the beginning of each session.

Graphic organizer. One graphic organizer was used to assist participants in determining the appropriate answer (adapted from Mims et al., 2012). This organizer displayed the steps to answering the "Wh" questions (see Figure 1) and served as a tool the participants may use to assist in answering the questions. A color hardcopy of the organizer was placed in front of the participant and reviewed prior to each intervention and maintenance phase.

Research Design

In this pilot study, a multiple probe across participants design was used to evaluate the effectiveness of systematic instruction on the comprehension of an adapted employee handbook. Baseline data were collected on the participants' preintervention response to comprehension questions based on the adapted text. Throughout baseline, the interventionist did not use the systematic prompting or the graphic organizer but the pictures and the read aloud components were provided for the participants. After a stable baseline was established for the first randomly selected participant, the interventionist began instruction using a graphic organizer (see Figure 1) and embedded systematic prompting. To avoid unintentional learning through repeated testing and exposure to materials, the remaining participants were periodically probed

on their baseline skills while Participant 1 was in intervention. The phases of the study consisted of baseline, intervention, generalization, and maintenance. The participants were introduced to the intervention one at a time following a time lapse procedure. Once a participant demonstrated mastery of a text, the next intervention phase was introduced. The rule set for this study was three sessions of 100% mastery or a total of six intervention sessions before the next participant was introduced to intervention.

Measurement

The dependent variable of this study was the number of unprompted correct responses to a series of text-based comprehension questions created by the research team. Event recording was used to determine the number of correct comprehension questions answered for the adapted text (see Table 1 for comprehension questions). One section of an employee handbook was adapted for the intervention. To ensure that the questions measured participant comprehension of the text, a university expert and a leading preschool staff member reviewed the questions and adapted text.

When participants selected answers to the questions, they touched the response they wanted on the iPad. The answer button would then light up, indicating their selection. The answer was recorded on another paper and then verified by the researcher by going through the selections on the iPad and cross-checking the responses recorded by the researcher.

To ensure procedural fidelity during data collection, a second member of the research team observed and recorded responses during 25% of the baseline and intervention sessions. The responses were then compared. The number of agreements were divided by the number of agreements plus disagreements and then multiplied by 100%.

Procedures

Participants were brought into a one-on-one setting with the interventionist for the procedure. These sessions took place based on when the participant was available (between classes) and on campus. Each session took approximately 10 minutes and sessions took place three to five days per week (depending on participant and researcher availability).

Baseline. The researcher sat next to the student participant at a small table with the iPad® propped up between them. The handbook version that was randomly selected for that session was displayed on the iPad®. The researcher read the text aloud and then let the student swipe to the next page. The question was read along with the answer choices. The interventionist then waited for the student to select an answer choice by touching the answer on the tablet display. If the student verbalized the answer, the interventionist prompted the student to select that answer on the screen. After each response, the interventionist recorded a "+" for a correct answer and a "-" for an incorrect answer. No indication of whether the answer was correct was given to the student. The interventionist gave the student verbal praise for participation and then moved to the next page of text. After the adapted handbook and all questions were read, the interventionist thanked the student for participating and sent the student on to whatever was next on his or her schedule. The interventionist then compared the responses noted on the data collection sheet to the responses noted in the iBook® question pages. Once they were confirmed correct on the data sheet, the student responses were cleared.

Intervention. The same adapted text was used for each participant. During the reading, the interventionist read the text to an individual participant from an iBook® using an iPad®. Prior to each session, the graphic organizer was reviewed with the participant and then placed in front of the student to refer to during the intervention. The participants were then asked to respond to the comprehension questions on each page by touching the appropriate picture or answer options on the screen, just as in baseline. Following the design by Mims et al. (2012), the interventionist asked a comprehension question at a predetermined point and waited 4s for a response. If correct, the response was recorded as an unprompted response and the participant was given verbal praise. If not correct or no response was given, a prompt was delivered by reminding the participant what type of "Wh" question was answered and the rule it followed using the graphic organizer (see Figure 1). Then the paragraph that had the answer was read again and the question and response options were repeated. If the participant did not respond or gave an incorrect response, a second prompt was given where the sentence containing the answer (targeted reread prompt) was read again, the correct response was then modeled (e.g., pointed to the correct answer), the question and response options were then reread and the interventionist waited another 4s for a response. If needed, a third prompt was given. This consisted of a controlling prompt where the interventionist pointed to the correct answer and said, "The answer is ___. Your turn. You point to ____." The participant was then given descriptive verbal praise and the correct answer restated ("That's right, the correct answer is _____"). If the participant still did not point to the correct answer, the interventionist gave hand-over-hand assistance as

well as the same verbal praise mentioned in the third prompt. Once the participant successfully answered all 10 questions without prompting for three sessions, the participant was moved to the maintenance phase. As the participants completed the intervention, they were probed weekly after intervention to determine maintenance levels. The first participant reached the maintenance phase within 4 intervention sessions and therefore was able to be probed multiple times within the maintenance phase. The subsequent participants took longer to reach the maintenance phase and the semester ended after only one maintenance probe was taken.

Data Analysis

The number of correct, unprompted responses to the measurement questions were graphed for both the baseline and the intervention (see Figure 2). Then the data were analyzed visually for trends, variability, and to determine the relationship between the dependent and independent variables. Functional relationships were examined as well as practicality of implementation in the classroom or postsecondary setting.

Reliability

The list of comprehension questions was evaluated by an assistant professor and doctoral student who had worked with the participants over the course of the past semester as well as an employee of the business from which the handbook was obtained to verify that they represented comprehension of the text as well as whether they were challenging enough for the participants. The questions were then pilot tested with a sample of individuals without disabilities to ensure the questions were phrased appropriately and made sense to the reader/listener. During baseline and intervention, the iPad® recorded the responses for each student and these responses were double-checked against the responses recorded by the interventionist to ensure reliability of data collection. A second observer took procedural fidelity data during 28% of the baseline, intervention, and maintenance sessions to ensure reliability of the intervention. The number of steps present was divided by the total number of planned steps and then multiplied by 100% to calculate a procedural fidelity of 95%.

Results

During each session, participants were asked a total of 10 comprehension questions with regard to the text. Brenda correctly answered 93 out of 110 total questions (85%), Charles correctly answered 102 out of 190 total questions (53%), and Adam correctly answered 90 out of 130 total questions (69%). Individual participant data are displayed in Figure 1. Table 2 compares the mean number of correct unprompted participant responses across study phases as well as the ranges for baseline, intervention, and maintenance. Table 3 displays the frequency and percentage of correct responses to the comprehension questions categorized by type of question.

Brenda. The strongest reader of the three participants, Brenda held a steady baseline at midrange (i.e., either five or six correct responses) for three data points. The team determined that she was ready for intervention at that point. Once in intervention, she jumped to 8 out of 10 correct in the first session. During the next three consecutive sessions she scored 10 out of 10. At that point, since she had achieved mastery, she was moved to a maintenance phase, and the next participant was introduced to intervention. Brenda continued to score 10 out of 10 over four more data points over the course of four weeks.

Charles. The second participant, Charles, struggled the most of the three students. He began to trend upward during his first 4 baseline sessions so baseline was continued until he stabilized. After 7 data points in baseline, he was consistently scoring between 1 and 2 answers correct. Once in intervention, he stayed at 2 for the first session and then jumped up to 6 correct out of 10. He held steady between 6 and 7 for five sessions, so intervention was continued. By session 10, this participant was scoring 10 out of 10, which he maintained for three intervention sessions and one maintenance session.

Adam. Adam held a steady baseline early on so he was moved to baseline probes while Charles was in intervention. He was probed immediately before intervention began and answered 5 out of 10 correct. Once intervention began, he held a steady trend upward until he was at 100% at the fourth session of intervention. He maintained 100% mastery for three sessions and one maintenance session.

Maintenance

There was limited time to complete maintenance probes for all three participants due to the semester ending. Because Brenda completed baseline and intervention quickly, she was available for four maintenance probes over the course of four weeks. She maintained 100% accuracy during this phase. Charles had an extended baseline due to variability and an extended intervention phase due to the length of time it took him to master the questions. The length of these two phases and the ending of the semester led to only one intervention probe, which took place one week after intervention ended. He remained at 90% in

maintenance. Adam too only had time for one maintenance probe at two weeks after intervention ended. He remained at 100%.

Social Validity

A social validity survey was given to participants that included ratings scales on whether they liked the intervention, found it helpful, and would like to use something similar in the future. Comments were combined thematically. The overarching theme that emerged was that the results of this study were important in informing and adding to the evidence base for the need for adapted and universally accessible real-life texts such as employee handbooks. Field observations of and feedback from the research team described the adaptation process as very time consuming, particularly in obtaining and adding the pictures throughout, but was practical and easy to use in the workplace setting. The research team strongly agreed that the prompting system was effective and appropriate for the intervention. The students all agreed that the intervention was practical and easily used in a workplace or home setting. They agreed that the prompting system was appropriate for the intervention. Of the participants, two strongly agreed and one agreed that the questions asked were appropriate and related to the job. All three participants stated that they liked the intervention and the use of the iPad® and iBook® as a delivery method. A total of 100% agreed that they found the adapted text helpful and that they would like to use something similar in the future.

Discussion

The purpose of this pilot study was to evaluate the effects of a read aloud of an adapted employee handbook combined with a systematic-instruction-based literacy treatment package to the text comprehension of young adults with ID and ASD. Previous research using shared stories and read alouds for grade-level text have been very successful (Courtade et al., 2013; Mims, Browder, Baker, Lee, & Spooner, 2009; Mims et al., 2012; Spooner et al., 2015), but they have not included young adults with ID and ASD or workplace texts such as employee handbooks. An essential component of workplace success is having literacy skills (Conceição, 2016). This research is necessary to explore literacy instruction and accessibility options for young adults with ID and ASD who are currently in the workplace or preparing for the workplace setting. Furthermore, this research could provide assistance to all disability service providers that are working on competitive integrated employment opportunities with clients.

Similar to past research (e.g., Mims et al., 2012), the research team found that it was very easy to increase comprehension when a few elements of the principals of Universal Design for Learning (Rose & Meyer, 2002) and evidence-based literacy instruction such as systematic instruction (Spooner, Browder, & Mims, 2011) were applied to the employee handbook. All of the participants in this study made progress during this intervention as compared to baseline. Only one of the participants demonstrated significant variability within the baseline phase. Brenda held steady at a midrange at baseline and then made immediate improvements after the first intervention session. Adam had some slight variability that could have begun an upward trend in baseline, but overall he was relatively stable over baseline. In the interest of time, the research team determined that he was ready for intervention despite the variability. It took several baseline sessions to achieve stability for Charles, and he needed several more intervention sessions than the other participants to reach mastery of the content in the intervention stage. Most important, though, is they all eventually achieved mastery of the comprehension questions. All participants made a significant increase in level from baseline to intervention and then were able to sustain those levels in the maintenance phase. These outcomes are important additions to the current literature on improving the reading comprehension skills of students with intellectual and developmental disabilities, especially at the postsecondary level (Allor et al., 2014; Conners, 1992; Courtade et al., 2013; Hudson & Test, 2011; Mims et al., 2012). Earlier studies (Courtade et al., 2013; Mims et al., 2009, 2012) used shared stories with fiction and biographies to demonstrate reading or literacy gains for students with intellectual and/or developmental disabilities. This current study expands on these by using employee handbooks to improve individuals' success on the job.

This study also built on the work of Mims et al.'s (2012) use of comprehension questions that followed a set of rules to build text comprehension for individuals with developmental disabilities. Only the "Wh" questions were given a rule in the graphic organizer, and a "How" question was added for a comparison. As can be seen by the results in Table 3, there was no difference between the percentage correct for a "Wh" question than the "How" question, implying that the success of the students in answering the comprehension questions may have been due more to the repeated readings of the text than the graphic organizer. Future research is needed to determine if a graphic organizer and set of rules of this type really helps with text comprehension for students with developmental disabilities.

Limitations

There are multiple limitations to this pilot study. To begin with, there was a small sample of only three individuals from a conveniently selected setting. All three were from the same postsecondary program for students with intellectual and developmental disabilities with very little diversity in race or socioeconomic status. They were all between the ages of 18 and 19 years old and were all capable of navigating a university campus independently. The adapted text and comprehension questions were original measurements so the reliability and validity could be questioned. Only a few pages of one specific handbook were included in this study so more research is needed on an entire handbook and a variety of handbooks from different types of workplaces. There was also no assessment of whether knowledge of the text led to improved performance in the workplace. For example, although Brenda showed improved performance over the course of the intervention, she completed various tasks during her internship directly related to the employee handbook, and there is no way to determine whether it was the result of the intervention or prior knowledge. Finally, it was noted that Charles struggled in his reading comprehension. It is a possibility that Charles' gains could have been through repetition of the intervention. Again the application piece needs to be extended in future research.

Implications for Future Research and Practice

Future research in this area should focus on using a variety of postsecondary schools and/or programs as well as demographics. In the future, similar studies should look across multiple disability services providers (e.g., job coach, vocational rehab case manager). In addition, this intervention should be tried with younger students (e.g., middle school and high school) to introduce and explore important job training skills earlier. This type of intervention should be tried with more students in the mild to moderate disabilities category so further evidence of the effectiveness of adapted texts and access to read aloud may improve understanding for employers of having this type of handbook available to all employees. Further exploration is needed as well on the frequency and duration of the intervention as the maintenance phase was cut short due to time constraints. Future research should include related workplace task performance measure to assess carryover of text comprehension to actual workplace skills.

This pilot study gives more insight into methods for teaching students with mild to moderate ID and ASD how to better access the world of reading. The combination of read aloud, adapted text, technology use, and systematic prompting should be used within the classroom, with other service providers, and beyond to help individuals with ID and ASD at all ages improve their text comprehension. Specifically, disability service providers, when working with young adults with ID and ASD in the postsecondary setting, should examine the use of universally designed texts as an accommodation in college courses. This along with the provision of tutoring services using systematic instruction to build comprehension skills and strategies, could potentially help these students progress more effectively through their courses.

Within postsecondary education programs for individuals with ID and ASD, program coordinators should use the information from this study to work with potential employers to adapt employee handbooks or written policies and procedures using principles of Universal Design. When paired with systematic instruction, the data from this study support increased comprehension of these very important texts. Educational coaches can work with students to build their skills in interacting with this type of text to increase their independent access and use of the text itself. As students progress in their independent use of this type of adapted text, they could potentially transfer that to future employment settings, thus improving their chances for continued employment success. The results from this study add to the evidence base that individuals with ID and ASD can comprehend workplace texts if given appropriate access to those materials.

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About the Authors

Stephanie M. Devine received her B.A. degree in English from California Lutheran University and Ph.D. from the University of Nevada, Las Vegas. Her experience includes working as a special education teacher and instructional facilitator for the Clark County School District serving primarily high school and transition-aged students with moderate intellectual disabilities and autism. She is currently an assistant professor in the Department of Elementary and Special Education at Georgia Southern University. Her research interests include access to text and independence for young adults with moderate to significant disabilities through the use of handheld technology. She can be reached by email at stephaniedevine@georgiasouthern.edu.

Joshua N. Baker received his Ph.D. in special education at the University of North Carolina at Charlotte. Josh is currently an associate professor in special education at the University of Nevada, Las Vegas. His research interests include accessing the general education curriculum and post-secondary education access for students with disabilities. He can be reached by email at josh.baker@unlv.edu.

K. Ryan Wennerlind received his B.A. degree in Health Education from the University of Nevada, Las Vegas and M.Ed in Special Education from the University of Nevada, Las Vegas. His experience includes working as a special education teacher for the Clark County School District and serving students with intellectual/developmental disabilities. He is currently associate director for the Center for Autism Spectrum Disorders and Project FOCUS at the University of Nevada, Las Vegas. His research interests include post-secondary education and post-secondary education outcomes for students with intellectual/developmental disabilities. He can be reached by email at: karl.wennerlind@unlv.edu.

Mona Nasir-Tucktuck received her B.A. and M.A. in Special Education from Hope College and the Ohio State University, respectively. She received her dissertation in Special Education from the University of Nevada, Las Vegas (UNLV). Her experience includes working as a student teaching superior and university instructor at UNLV. Currently, she is a visiting assistant professor in special education at UNLV. Her research interests include including students with intellectual disabilities in academics through UDL, embedded instruction, and shared story reading. She can be reached at Mona.Tucktuck@unlv.edu.

Table 1

Comprehension Questions

Employee handbook questions	
Question 1:	What do you need to do if you keep missing work?
Question 2:	Who should you report to if you get hurt at work?
Question 3:	What is one of the things you need to work here at the preschool?
Question 4:	Where should you take broken or damaged toys?
Question 5:	How should you handle big problems with students?
Question 6:	When should you talk about students to other parents or people outside of the school?
Question 7:	When should you bleach the cots?
Question 8:	When should you watch the children?
Question 9:	What is NOT a monthly duty?
Question 10:	When should you check your health card and Sheriff's card?

Table 2

Mean Number of Correct Unprompted Participant Responses Across Study Phases

	Baseline		*Employee Handbook*		*Maintenance*	
Participant	***M***	***Range***	***M***	***Range***	***M***	***Range***
Brenda	5.33	5-6	9.5	8-10	10	10
Charles	2.29	0-5	7.18	2-10	9	9
Adam	4.67	3-6	8.67	6-10	10	10

Table 3

Number of Correct Responses to Questions by Type

Question	Total Number of Chances (n)	Correct Responses by Participant *(n)*				
		Brenda	Charles	Adam	Total	%
Who	43	11	12	8	31	0.72
What	129	26	28	30	84	0.65
Where	43	10	10	8	28	0.65
When	172	36	38	33	107	0.62
How	43	10	10	8	28	0.65

Note. Includes baseline, intervention, and maintenance phases.

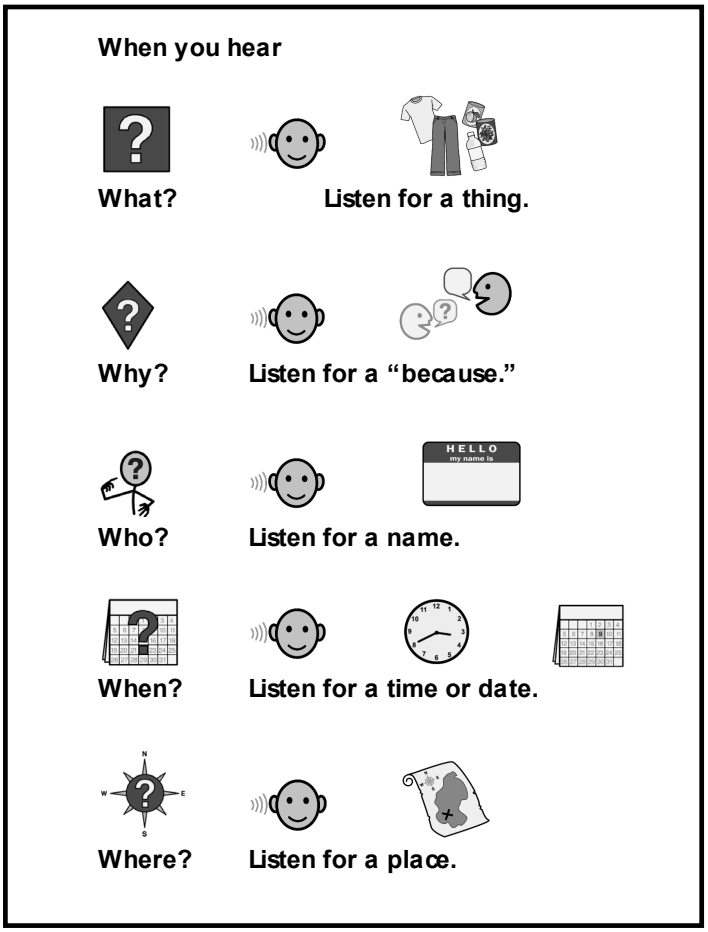

Figure 1. Graphic organizer for answering comprehension questions.

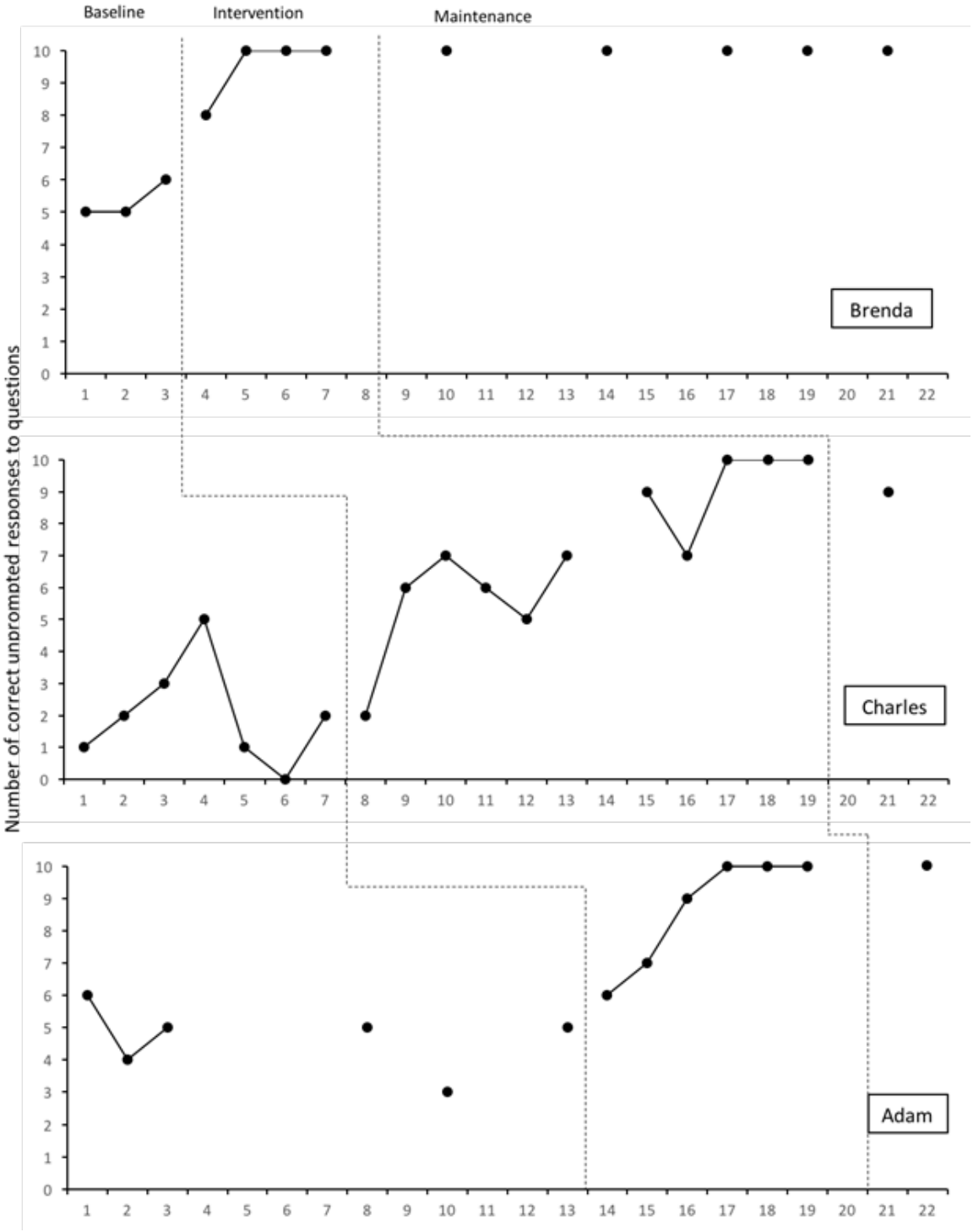

Figure 2. Number of unprompted correct responses to comprehension questions. Break in data for Charles was due to an absence.