


## Article

# Autistic Adult Knowledge of the Americans with Disabilities Act and Employment-Related Rights

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**Abstract:** As the autism community continues to grow, it is increasingly important to evaluate strategies to teach workplace-related skills to the members of this community. One of these skills is self-advocacy, defined by Test et al. as consisting of four components: self-knowledge, knowledge of rights, communication, and leadership. This study aimed to address the second component of this definition, knowledge of rights. Three autistic adults learned information about key terms from the Americans with Disabilities Act. Participants practiced identifying legal rights related to discrimination and inability to provide certain accommodations in a series of short text scenarios, using instructor-modeled rehearsal of similar scenarios as the independent variable. Results show that each participant entered the study with an existing level of knowledge and ability to interpret the rights of various scenarios (30–60% correct during baseline) and that training resulted in small improvements (a 20–40% increase) in accurate scenario interpretation. Future research should include additional techniques, such as role play, to enhance performance accuracy and examine long-term retention and generalization of the skills acquired. Social validity feedback suggests that the training used in this study was acceptable to participants and may be amenable to future studies.

**Keywords:** autism; employment; legal rights; self-advocacy



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## 1. Introduction

Individuals with autism spectrum disorder (ASD) have often reported difficulties surrounding finding and maintaining employment [1–3]. Approximately 40% of autistic individuals are unemployed [4], a rate higher than other groups of individuals with psychological diagnoses, though this rate does seem to be improving [5]. This lower overall employment rate may be due to a combination of factors. For example, social aspects of employment such as applying for jobs, correspondence with prospective employers, and succeeding in interview settings may be difficult for members of the autism community [6–9]. Furthermore, autistic workers may find it difficult to retain a job once it is earned [10,11]. Factors outside of a worker’s control, such as employer inflexibility and stereotype threat, may affect workplace performance and satisfaction, and additional attributes (such as social differences, sensory sensitivities, and time management) may produce various positive and negative effects on workplace experience and performance [12–21]. Even seemingly secondary skills, such as self-transportation, can play a role in gaining and maintaining employment [22–24].

Previous research suggests that if these difficulties can be addressed, autistic workers can flourish, and these individuals have a great deal to offer employers. For example, based on the job and the individual, an autistic worker who takes an interest in workplace tasks may deeply engage and dedicate themselves to these tasks in a manner that other workers may struggle to do [25,26]. Turnover is also less common in this community; as indicated by Scott et al. [27], an autistic worker who finds gainful employment is more likely than non-autistic workers to stay with an employer for a prolonged period. Finally, autistic workers

have self-described several advantages, including forthright communication, increased efficiency and focus, and a strong sense of logic and pattern recognition [25]. While the concept of an overarching “autism advantage” is empirically dubious [28–30], these and other studies clearly demonstrate that autistic workers may perform just as well as other employees, if not exceeding them in key areas.

Furthermore, various changes and skills have empirical support in improving workplace satisfaction and performance. Social obstacles have been overcome with the help of a job coach, behavioral skills training, and technological assistance [31,32]. It was also found that regular feedback could reduce performance anxiety, and auditory prompting systems may improve performance without the need for increased supervision [33]. Additional supports, such as visual aids, can be used in training and may be retained if needed in the work environment [34].

Using these supports and changes, however, may be more difficult than anticipated. The autism community is tremendously diverse in factors such as sex, co-occurring diagnoses, interests, abilities, and many more [35–37]. Without knowledge of an individual’s unique skills and needs, employers may incorrectly assume what an “autistic” worker can or cannot do, potentially harming their work experience and productivity. Thus, a key skill, that of self-advocacy, may be very important in helping autistic workers access support, break down assumptions, and improve their overall employment experience.

### 1.1. Self-Advocacy

Self-advocacy, when discussed in the context of students with disabilities, includes four key elements [38]. First, self-knowledge describes an individual’s understanding of their strengths and weaknesses, as well as their understanding of their diagnoses and the impact(s) it may have. Second, knowledge of rights describes an individual’s understanding of what they deserve and have guaranteed by law, as well as the ability to evaluate a situation to determine if these rights are being met. Third, communication is the individual’s ability to take the initiative to communicate their wants and needs for change. How the individual communicates varies based on individual ability and context. For example, a vocal request “I need help” may be sufficient for classroom self-advocacy, while for a professional, a textual response such as a formal email may be more appropriate. Fourth is leadership, described as an individual taking initiative for their own circumstances and actively advocating for their community, organizations, and groups, potentially on a larger scale.

This skillset can be tremendously useful to autistic adults. The self-advocating individual can successfully describe obstacles or rights violations and request alterations or assistance; even if the requested changes are not feasible, the request can highlight an issue for consideration by an employer. Autistic individuals have historically not been consulted in decisions about their education or training [39], yet their experiences, perceptions, and goals can have a tremendous impact in these endeavors. Self-advocacy may also differ from “autism advocacy” by non-autistic individuals, such as parents [40], and self-advocacy topics and techniques may vary by the setting one is self-advocating in (e.g., school or workplace).

To the authors’ knowledge, research on the topic of self-advocacy has not yet established a unifying definition of self-advocacy among workers with disabilities. For example, Schena et al. [41] conducted a literature review on teaching self-advocacy skills and found that most studies examined self-advocacy exclusively in an educational, rather than employment-based, setting. However, while the definition proposed by [38] is designed to apply to individuals in academic settings, it could apply to workplace self-advocacy as well. Whether it be with fellow co-workers or individuals in a greater industry, or even all autistic workers, self-knowledge, legal knowledge, communication, and collective self-advocacy in a workplace environment are both feasible and necessary. The focus of this study was on the second component of self-advocacy defined by Test et al. [38], “knowledge of rights”, with these rights derived from the Americans with Disabilities Act (ADA).

### 1.2. The ADA and Workplace Rights

The workplace experience of workers with all forms of disability changed with the onset of the ADA [42,43]. Though not the first act of legislation ensuring the rights of workers with disabilities, this legislation outlined several key terms applied to a wide range of employers and employment fields. Title I of the ADA, and in subsequent legislation, broadly defines the term *disability* as when a person has a record of experience that inhibits one or more major life activities [44–46]. Differentiating employment based on disability status legally constitutes discrimination [44–46]. It is interesting to note that, with the onset of the ADA, overall employment of individuals with disabilities may have dropped in the early 1990s [47–50]. Researchers have attempted to explain this phenomenon, with the most popular explanation being an overall increased expense in hiring and maintaining workers with disabilities [48–50], though research to the contrary exists [51,52]. Given these reports, knowledge of the ADA's provisions is an essential skill for autistic workers.

The ADA plays a significant role in the workplace experience of persons with disabilities. Skills and behaviors related to self-advocacy and the receipt of accommodations have been examined in previous studies. For example, Lindsay et al. [53] described a search of seven databases that produced 26 articles surrounding diagnosis disclosure behavior among autistic workers. However, based on the results of an earlier review [41], no studies have taught self-advocacy skills, nor examined them, in the context of employment or the ADA among the autism community.

The closest related study focused on teaching eight adults with various disability diagnoses to recognize violations of their civic rights and take action to express those rights [54]. These participants resided in a rehabilitation facility and had a wide range of diagnoses, none of which included autism. Participants in this study (four male, four female) were noted to lack skills necessary for employment or functional independence. During the study, participants met in a group setting to review civic rights. The researchers presented rights via a series of pre-written text, approximately four short sentences in length, with each scenario illustrating a violation or non-violation. The researchers then categorized the rights into four overarching themes (i.e., personal rights, community rights, human service rights, and consumer rights), each of which contained four to ten rights illustrated in scenarios (such as the right to marry, the right to vote, the right to privacy, the right to choose what to buy, etc.).

Through regular meetings in a small group, Sievert et al. [54] displayed a string of text scenarios one at a time to individual members of the group. Participants explained whether the scenario identified a civic rights violation, and if so, how to best respond to the violation. All eight participants in this study achieved mastery criteria of 90% or greater accuracy and maintained this level of performance one and three months following the end of instruction. This is a landmark study for the current study, in that the methods it used resulted in participants clearly identifying and explaining key rights. However, Sievert et al. [54] examined these rights in a more general sense and included almost no employment-specific rights or scenarios. The present study deployed a methodology like that used by Sievert et al. [54] to teach employment-related rights to three autistic adults. These rights come from Title I of the ADA and were used to identify some of the terms and situations that may be covered by the ADA.

## 2. Materials and Methods

### 2.1. Participants

To recruit participants, the researchers advertised the study using pre-existing email listservs, physical flyers, and announcements at the host university autism-centered events. Emails were sent to a wide variety of individuals, including autistic adults, family members of autistic individuals, healthcare providers, educators, and community organizations. Physical flyers (posted around the host university psychology building) detailed the anticipated length of study sessions (one hour per session), incentive for participation, and the

inclusion criteria. Announcements of the study were also made at autism-centered events (including social events, research consultation meetings, and online gaming meetings).

Inclusion criteria for the study were as follows. Participants (1) were legal adults who identified as a person with autism, (2) were fluent in written and spoken English, (3) could complete the study independently (without prompts from a parent or other individual; for example, an individual who needed regular prompting to stay on-task, or who would not take steps without consulting another individual, would not be considered capable of completing the study independently), and (4) could attend to and understand the purpose of the study. This final criterion was assessed during the initial meeting by asking questions about the study following a brief introduction. Specifically, participants were required to answer the following questions: (1) “What will you be doing as a part of the study?” (correct answers including mention of the ADA or employment) and (2) “What can you do if, once you have started the study, you decide that you don’t want to participate anymore?” (correct answers including mention of “I can leave”, “I can withdraw”, or similar). All participants received a USD 40 electronic Amazon gift card and were eligible to enter a drawing for an additional USD 30 gift card at the end of study (i.e., end of maintenance). These amounts were decided based on prior research projects conducted by the first author with this population using gift cards of these amounts.

Three autistic adults were recruited for the study (see Table 1 for demographic information). Participant 1 (“Christa”) was a 43-year-old autistic nonbinary individual who identified as non-Hispanic white. Participant 2 (“Nate”) was a 25-year-old autistic male who identified as White Hispanic. Participant 3 (“Justin”) was a 20-year-old autistic male who identified as White Hispanic. No participant reported paid employment within the past year. This sample size was not pre-determined by power analysis but rather was a convenience sample whereby as many individuals as could be recruited in the time dedicated for the study were screened and included.

**Table 1.** Participant Demographics.

| Participant ID | Age (Years) | Ethnic Identity                         | Hispanic Cultural Origin | Gender Identity | Autism Diagnosis Received? | Autism Score (Out of 50) | Employed within the Past Year? |
|----------------|-------------|-----------------------------------------|--------------------------|-----------------|----------------------------|--------------------------|--------------------------------|
| Christa        | 43          | Non-Hispanic White or European American | No                       | Nonbinary       | Yes                        | 31                       | No                             |
| Nate           | 25          | Hispanic                                | Yes                      | Male            | Yes                        | 29                       | No                             |
| Justin         | 20          | Non-Hispanic White or European American | Yes                      | Male            | Yes                        | 24                       | No                             |

During the initial session, all participants completed the Autism Spectrum Quotient (ASQ). This is a 50-item self-rated questionnaire devised by Baron-Cohen et al. [55] to offer a quick, self-administered measure of an individual’s autism experience. Higher scores on the ASQ indicate greater self-perceived autism traits, with a mean of 35.8 for autistic respondents and a standard deviation of 6.5 and with a mean of 16.4 and standard deviation of 6.3 for non-autistic respondents. During intake, Christa received a net ASQ score of 31, within one standard deviation of the average of the autism community (0.74 standard deviations). Nate received an ASQ score of 29, just over one standard deviation below the average score for the autism community (1.05 standard deviations), and Justin received an ASQ score of 24, over one standard deviation (1.82 standard deviations) of the average score of the autism community’s original score.

## 2.2. Setting and Materials

Research sessions were held 1–2 times per week. Sessions were advertised to last no longer than 60 min; if a participant’s session reached 60 min (which happened once due to a mixture of internet difficulty and long participant response latency), the researcher presented the participant with the option to stop or to continue on past this limit, with

sessions lasting an average of 40 min (range 30–120 min). Participants met individually with the first author to protect participant confidentiality. All sessions were scheduled to take place via Zoom and were video-recorded with participant knowledge and permission for later reference and data collection. The first author hosted all Zoom calls from private locations on the hosting university campus (various private offices), while participants typically joined meetings from their primary place of residence, such as their family home or dorm room.

During the first scheduled session, the first author gathered information from the participant using two forms in addition to reviewing the consent form. This initial session was guided by a script. The forms participants completed were the ASQ and a demographics questionnaire to gather information related to autism diagnosis, age, ethnic identity, cultural origin, gender identity, and previous employment. The study made use of Microsoft PowerPoint 2021 (version 2306) to present scenarios to participants during all baseline and training sessions. Every session meeting except for intake sessions included the use of at least one PowerPoint for testing, instruction, or both (as described in the section below). The researcher used a random number tool (a random number generator from Calculator.net, a site freely available on the internet) to randomly order test scenarios within sessions.

### Test Scenarios

To follow the method of Sievert et al. [54], the first author identified a series of principles related to the ADA in an employment setting relevant to the participants of this study. The first author read Title I of the ADA in detail and requested consultation of a representative from the hosting university's Disability Services office to identify the key principles used for this study (though this consultant did not later review the devised scenarios). The principles included two overarching categories: (1) detecting employment discrimination and (2) identifying situations where an employer could not provide the requested accommodation (see Table 2 for an itemization of these principles).

**Table 2.** Principles Addressed in Training.

| <b>Discrimination-Related Principles</b> | <b>Inability to Accommodate-Related Principles</b> |
|------------------------------------------|----------------------------------------------------|
| Refusal of Accommodation                 | Prolonged Absence                                  |
| Retaliation                              | Removal of Essential Job Functions                 |
| Direct Threat                            | Facility Operation                                 |
| Reassignment                             | Infringement on the Rights and Pay of Others       |
| Interviewing                             | Financial Ability of the Employer                  |
| Exacerbating a Condition                 | Persistent Refusal of Accommodation                |
| Timing of Disclosure                     | Workplace Redesign                                 |

A series of text scenarios were created to use as probe items for all sessions. Sample text scenarios from Sievert et al. [54] were adapted to increase the similarity between the items in that study and the current study. Scenarios were of similar length and detail (maximum of five sentences; see Appendices A and B). Each principle included four scenarios that were derivations of one another. All scenarios described a hypothetical individual with a disability (physical and/or mental) who encountered or responded to the identified principle. The scenarios also included hypothetical employers, superiors, customers, or co-workers based on the specific scenario used. For example, in a scenario illustrating “direct threat” as part of the set of scenarios focused on “inability to accommodate”, one sub-scenario described a worker exhibiting direct threat in a manner that can be easily solved via accommodation, while the other illustrated the same worker exhibiting a direct threat that cannot be solved via reasonable accommodation. Scenarios were randomly sorted into two sets, one used for training, the other for baseline and post-training purposes. All scenarios are included in Appendix A (discrimination-related principles) and Appendix B (inability to accommodate-related principles).



A set of “testing scenarios” were presented in PowerPoint for baseline and post-training. This presentation was divided into two sections, one contained all scenarios used for “discrimination training” and the other for “inability to accommodate”. One scenario was placed per slide, and each was presented in successive order to participants all during sessions. Two introductory slides were included prior to presenting a set of test scenarios. These two slides consisted of (1) a title slide, describing the slides as either “Baseline Session” or “Post-training Session”, and (2) a slide that included two questions (i.e., “Is this a case of employment discrimination?” and “Why or why not?”) for scenarios related to employment discrimination and (“Is this a case where an employer could not accommodate an employee?” and “Why or why not?”) for scenarios related to inability to accommodate. Participants were required to respond to each test scenario. A pair of “instructional” presentations were also created, one to teach about the ADA and the employment discrimination scenarios, the other to teach about inability to accommodate. The first of these presentations (containing 44 slides) began with an overview of the ADA, as well as definitions and explanations of four key terms: “disability”, “employer”, “essential function”, and “reasonable accommodation”. The presentation then described a principle and included the two scenarios used for training purposes on each principle. This ordering was repeated until the end of the slide deck. The presentation that showed scenarios of “inability to accommodate” (containing 24 slides) began with the principles and was therefore shorter than the first. The first author followed a script during both presentations to ensure consistency in how the information was presented across all participants.

### 2.3. Experimental Design

This study employed a multiple-baseline-across-skillsets design to examine the effects of the training on participant performance. Due to the limited time the researchers had to complete the study, participants began with two pre-training probes. An initial performance criterion of less than 85% correct in both skillsets served as the inclusion criterion. Participants then learned about key employment-discrimination-related principles tested in baseline, rehearsed using a “training” set like testing scenarios with a variation of behavioral skills training (BST) in a single session (i.e., a mastery criterion was not required to continue to post-training probes). Participants were then exposed to an immediate post-training probe, followed by a baseline of the second skillset (i.e., inability to accommodate). Each skillset received two post-training probes and a one-month maintenance probe using the same materials described for post-training. Sessions occurred once or twice each week until study completion. Participants attended sessions on the same days each week but sometimes met on different days or at various times due to scheduling conflicts.

### 2.4. Independent Variable

The independent variable was discrimination training of rights violations via written and verbal instructions, modeling, practice, and feedback. This training occurred in a pre-designed sequence where each scheduled training session had a certain topic to cover. Although instructions, modeling, practice, and feedback were used for portions of the training, participants were not required to meet a predetermined mastery criterion to complete participation in the study. Session times averaged 45 min, with the shortest session (Nate’s final session) lasting 30 min and the longest (Justin’s first baseline session) lasting for 120 min. While some sessions contained more material than others, this variation was principally due to duration of participant response whereby some participants responded quickly while others took longer and asked questions during the sessions. The first author answered all participants’ questions to the best of their ability (including logistical questions (e.g., “Will we be doing this topic again next time?”), material-related questions (e.g., “Can you explain that principle again?”), and questions related to the ADA and personal experiences thereof (e.g., “So when my boss told me that I needed to come in at a certain time, was that an example of an essential function?”) and articulated if they did not know the answer when this was true. There was no firm “cut-off” time between

sessions (e.g., there was not a rule that stated, “all sessions may last no longer than one hour”). However, during the use of test scenarios, participants were required to begin their replies no later than 90 s following the initial presentation of each scenario.

### 2.5. Dependent Variable

The primary dependent variable was participant responses to questions related to the scenarios presented. Participants answered questions (“Is this ...?” and “Why or why not?”) based on each scenario presented. The first author scored the answer to both questions. Responses to the first question (“Is this ...?”) were scored as a simple correct–incorrect dichotomy. Responses to the second question (“Why or why not?”) were scored based on a listing of response criteria developed for the study. The researchers elected to avoid a topographically restricted response such as a phrase that a participant must speak (e.g., “this is too expensive”). Instead, if a participant response (1) included the key information in a correct reply as described by the response criteria and (2) did not contradict that information within the same reply, the researcher scored this reply as correct. Participants were not restricted from including additional information or personal experiences (e.g., “this accommodation is too expensive; I’ve never asked for or had one that’s been more than like \$50 in one sitting, this would be way more than that”), provided that the addition of this information did not contradict the key information in the answer. Appendices A and B contain each used scenario as well as correct responses to each scenario.

As participants finished a session, the first author calculated the session’s score using transcriptions and recordings from each session as needed. A final score was reported as the number of items the participant responded to correctly divided by the total available items per session.

### 2.6. Interobserver Agreement

An individual with experience in recording observational data was recruited to score a total of 50% of all sessions (i.e., the first, second, and fifth session for each participant) for the purpose of interobserver agreement (IOA). The second scorer viewed Zoom recordings of all sessions and received BST training from the first author before recording data for the purpose of IOA. Agreement was calculated by dividing the number of agreements by the total number of scorable instances for each skillset (instances of agreement plus disagreements) and was reported as a percentage. This produced an overall agreement of 100% for all scored sessions.

### 2.7. Procedure

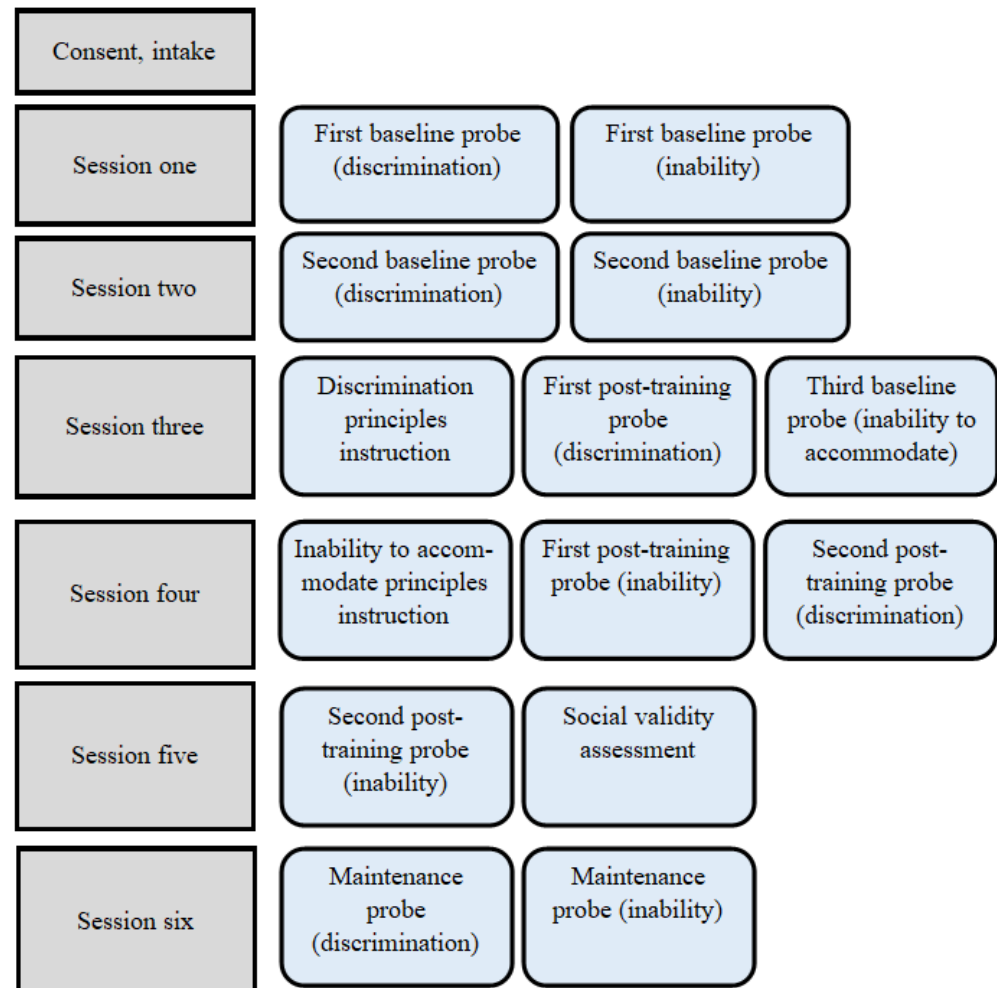
Figure 1 contains a visualization of study proceedings. Upon entry into the study, participants first completed a consent and intake session, followed by two baseline sessions. During sessions three and four participants learned about the ADA principles, and post-training probes were conducted. This included an additional baseline test (for inability to accommodate principles in session three). The fifth session consisted of post-training probes and a social validity assessment, while the sixth session consisted entirely of maintenance probes.

#### 2.7.1. Baseline

Baseline consisted of two to three sessions to evaluate individual performance while replying to the testing scenarios. During baseline, the first author presented one scenario selected for testing at a time to the participant and asked, “Is this a case of employment discrimination?” (if examining discrimination) or “Is this a case where an employer could not accommodate an employee?” (if examining undue hardship). After the participant provided a reply, the first author then asked “Why?” or “Why not?” During this process, the first author did not provide prompts or corrective feedback but did provide generalized and intermittent praise contingent upon participant engagement with the topics at hand (e.g., “OK”) after ending each scenario and before moving on to the next scenario. A total

of 14 scenarios were presented in this fashion per category, with 28 scenarios across the two categories.

After each baseline session, the first author calculated the participant's score, and data were evaluated for stability (defined as "within 10% of the score of the previous baseline session") before moving to the instructional phase of the study. If this stability was not achieved, the first author planned to deploy a third baseline session before beginning instruction; however, this was not necessary for any of the participants in the study.



**Figure 1.** Outline of the procedures followed with each participant.

### 2.7.2. Instruction: Discrimination Training

After baseline levels were stable, participants met with the first author to review the principles related to ADA-related employment discrimination (see Table 2). The first author presented these rights in the following order using the scripted "training" PowerPoint presentation that defined key terms and modeled examples for each term resembling those in baseline and during testing. The steps of the training were as follows:

**Step 1. Introduction to Topic.** First, the participant was introduced to discrimination through an introduction to key terms from the ADA. These terms included (1) disability, (2) employer, (3) essential responsibility, and (4) reasonable accommodation.

**Step 2. Definition of Key Term(s) of First Principle.** Second, beginning with the first principle (i.e., promotion), the first author defined key terms present in the sub-principle. In this case, the first author defined "refusal of accommodation" and then discussed information regarding the connection between this principle and employment discrimination.

**Step 3. Example of Interpretation of Scenario of Sub-Principle.** Third, the first author read aloud an example scenario of the principle on the screen and answered and



explained two questions: (1) whether the scenario did or did not indicate an instance of employment discrimination based on promotion and (2) the reason(s) why it did or did not indicate employment discrimination.

**Step 4. Participant Interpretation of Scenario of Sub-Principle.** Fourth, the first author provided the participant with a novel scenario describing the sub-principle. The participant was asked, “Is this scenario an example of discrimination?” The first author then either praised the participant’s answer as correct (if correct) or corrected it and asked for repetition of the correct answer (if incorrect). The first author then asked the participant “Why is this (not) an example of discrimination?” The participant’s answer was praised if correct. If the participant’s answer was incorrect, the first author first identified any correct parts of the answer, then identified the incorrect component(s). The first author then stated why this was incorrect, provided a correct response, and asked the participant to repeat the correct response. Participants continued to cycle through this model–response–feedback error correction procedure until the participant produced a correct response for each scenario presented during training.

**Step 5. Repetition of Steps 2–4 for Each Remaining Sub-Principle.** Fifth, once the participant described the previous scenario correctly, if there were no questions regarding the sub-principle, the first author moved on to the second principle, refusal of accommodation. This pattern continued until all seven principles were addressed and taught in this fashion.

**Step 6. Immediate Post-Training Probe of Principles (Employment Discrimination).** Sixth, the first author offered participants a short break (5 min) before proceeding to view the 14 scenarios for testing employment discrimination. The first author then asked in sequence for each principle whether the scenario presented an instance of discrimination and why it did or did not. The first author provided generic feedback based on engagement with the material (like baseline sessions) at this time.

**Step 7. Baseline Test of Principles (Inability to Accommodate).** Finally, the participants viewed the 14 scenarios illustrating the principles for inability to accommodate. Procedures for this stage were identical to those used during baseline.

### 2.7.3. Instruction for Inability to Accommodate Training

After baseline levels were stable, participants met with the first author to review the principles related to ADA-related inability to accommodate. These principles are shown in Table 2. The first author used a scripted PowerPoint presentation to introduce and practice these principles, using a procedure identical to that of the Employment Discrimination training. There were, however, three alterations. First, Step 1 (Introduction to topic) was significantly shorter, as there were no key terms to establish or practice with in this session. Second, Step 6 (Immediate post-training probe of principles) was a post-training probe of inability to accommodate principles rather than those of employment discrimination. Third and finally, Step 7 was an additional post-training probe of principles, this time examining the scenarios related to employment discrimination.

### 2.7.4. Second Post-Training Probe of Inability to Accommodate

The next session included post-training probes for inability to accommodate. The participant began by viewing 14 scenarios outlining the seven principles of inability to accommodate. In each case, the first author asked the participant whether the scenario indicated inability to accommodate or not and why this was the case. The participant viewed all 14 scenarios this way. As with previous post-training probes, the first author did not provide performance-specific feedback during this testing, only general feedback based on continued engagement during testing.

### 2.7.5. Social Validity

Following the second post-training probe, the first author presented the participant with an 8-item multiple-choice social validity questionnaire via a link in Zoom chat. The link led participants to a Qualtrics document (found in Appendix C). Participants were asked to provide feedback on topics covered, instructional style, timing of sessions, length of sessions, number of sessions, and self-rating of ADA as it pertained to employment. A final question was open-ended and invited participants to give additional advice or feedback to the researchers.

### 2.7.6. Maintenance

Participants were invited back one month following the final post-training session. Procedures for these sessions were identical to baseline and post-training sessions.

## 3. Results

Three participants entered and completed this study. Results show that all participants initially produced scores between 30 and 60% correct responding for both employment discrimination and inability to accommodate principles. These scores increased to approximately 80% following training. Participants scored higher on certain principles, such as timing of disclosure, both in baseline and in post-training.

### 3.1. Probe Performance

Results for Christa's performance are presented in Figure 2. Christa initially scored 36% and 43% in baseline of employment discrimination scenarios. However, she scored higher in inability to accommodate baseline sessions, with scores of 46%, 54%, and 50%. After training, she scored 93% correct in her first post-training test on employment discrimination. Her second post-training resulted in a score of 86% for discrimination and 68% for inability to accommodate, while the final post-training resulted in a score of 71% on inability to accommodate. Christa was typically very engaged during instruction and frequently asked questions, made analogies, or tied a principle to real-world experience. She returned for a one-month maintenance probe and scored 89% correct in employment discrimination and 64% correct in inability to accommodate.

Results for Nate's performance are presented in Figure 3. Nate initially scored 54% on both discrimination baseline sessions; he scored 43%, 46%, and 57% on inability to accommodate baseline sessions. Following training, his first post-training discrimination score was 68%. Afterwards, his next post-training score for discrimination scenarios fell to 54%, while his post-training inability to accommodate score rose to 84%. The final post-training probe of inability to accommodate produced another score of 84%. During the one-month maintenance probe, Nate scored 58% correct for employment discrimination and 75% correct for inability to accommodate performance. Finally, Nate returned for a one-month maintenance assessment, during which he scored 57% correct on employment discrimination scenarios and 75% on inability to accommodate scenarios. During some sessions, Nate experienced internet disruptions, which took the form of disconnection from sessions at varying points. While these interruptions were not timed, they could be as short as about 30 s (especially in later instances) or 2–3 min (the first time a disruption occurred). Nate described these disruptions when they occurred and was re-connected with a session's Zoom link within a maximum of three minutes for each interruption that occurred.

Finally, results for Justin's performance are presented in Figure 4. Justin scored 46% and 43% during baseline sessions on employment discrimination. He scored 32%, 36%, and 57% on the inability to accommodate scenarios. After training, Justin's scores on employment-discrimination-related scenarios improved to 54% and 75%. His post-training probes on the inability principles resulted in scores of 82% in both post-training sessions. Like Nate, Justin also periodically experienced internet disruptions, with these disruptions taking the form of visual blurring and discoloration of the screen. These issues were typically resolved within approximately 20 s.

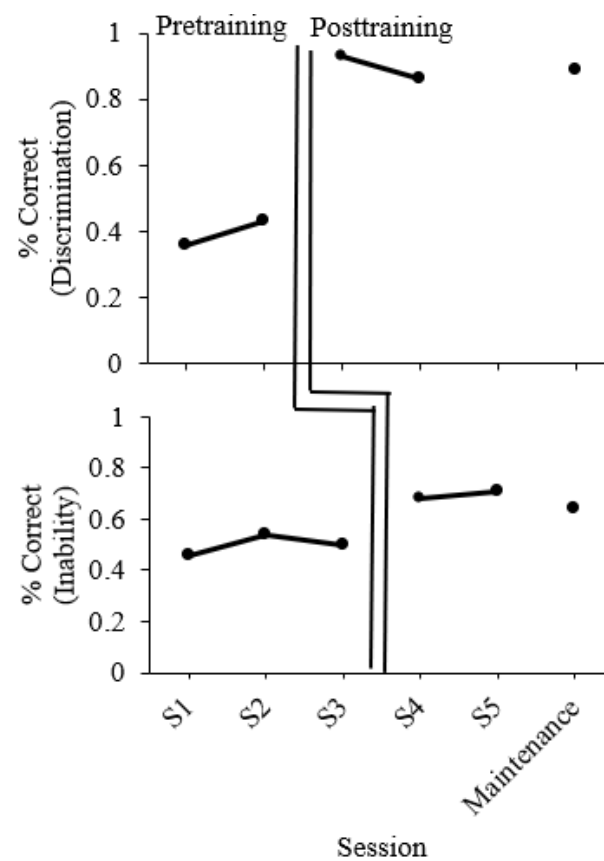


Figure 2. Performance on probes by Christa during all phases of the study.

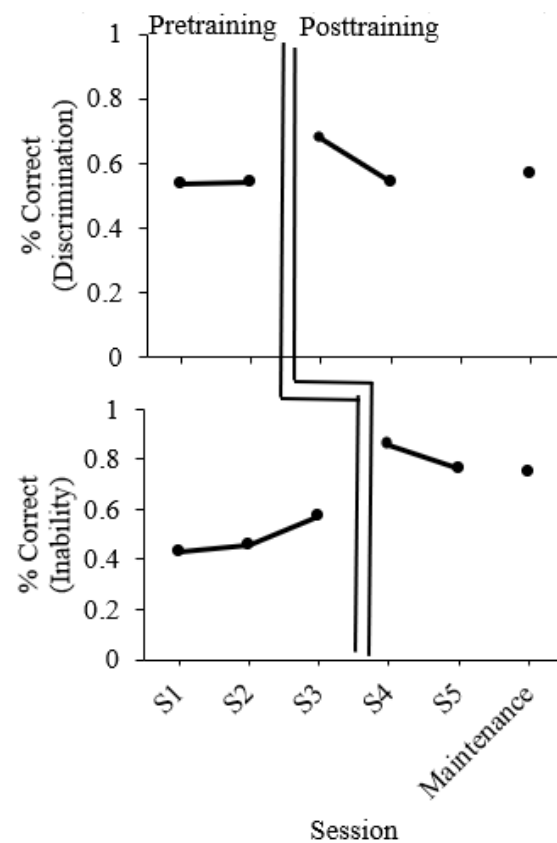
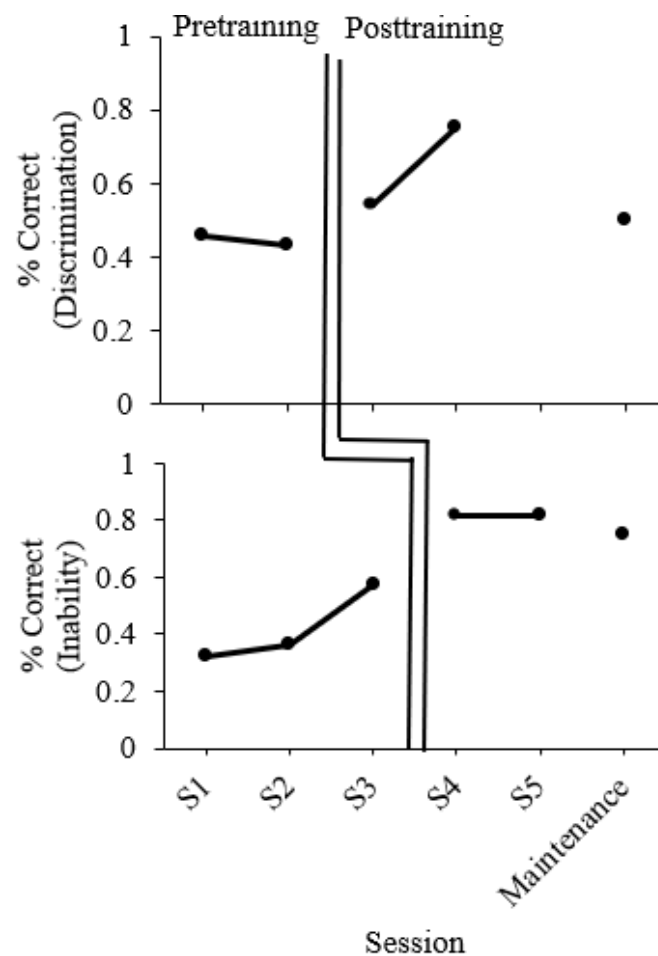


Figure 3. Performance on probes by Nate during all phases of the study.



**Figure 4.** Performance on probes by Justin during all phases of the study.

### 3.2. Item Analysis

In addition to scoring individual participant responses to questions, the first author analyzed the principles and questions asked during the study. Individual participant scores and overall averages are shown in Table 3. During baseline, participants accurately identified scenarios as discrimination or nondiscrimination (or as able or unable to accommodate) at the same percentage as they accurately explained their responses ( $t(13) = 0.14$ ,  $p = 0.44$ ), with a correct average score of 55% in identifying answers and 56% in explaining them. This similarity persisted in post-training, with an average identifying score of 74% and explanation score of 73% ( $t(13) = 0.43$ ,  $p = 0.33$ ).

Furthermore, when comparing “discrimination” answers to “inability to accommodate” answers, inability to accommodate scores were slightly higher (46% in the pre-training and 76% in the post-training probe, compared to 45% and 71% in the discrimination condition). The researchers did not, however, find a significant difference in either the pre-training scores ( $t(13) = 0.07$ ,  $p = 0.47$ ) or post-training scores ( $t(13) = 0.045$ ,  $p = 0.33$ ).

When the post-training probe data were analyzed, the researchers found that certain items were much more likely to be scored or missed by participants. For example, during baseline, participants averaged a score of 92% correct in identifying discrimination in scenarios related to timing of disclosure, and successfully explained it 83% of the time. Conversely, items related to interviewing were only identified correctly 35% of the time, with no correct explanations. These values increased following post-training probes, but timing of disclosure remained at a higher accuracy rate (100% for both) compared to interviewing-related items (42% and 58%, respectively).

**Table 3.** Item Analysis by Participant.

| Item                                    | Christa | Nate | Justin | Average Score |
|-----------------------------------------|---------|------|--------|---------------|
| <b>Baseline</b>                         |         |      |        |               |
| <b>Discrimination</b>                   |         |      |        |               |
| <i>Refusal of accommodation</i>         | 0.25    | 0.50 | 0.50   | 0.42          |
| <i>Retaliation</i>                      | 0.00    | 0.50 | 0.50   | 0.33          |
| <i>Direct threat</i>                    | 0.50    | 0.50 | 0.50   | 0.50          |
| <i>Reassignment</i>                     | 0.00    | 0.50 | 0.50   | 0.33          |
| <i>Interviewing</i>                     | 0.00    | 0.05 | 1.00   | 0.35          |
| <i>Exacerbating a condition</i>         | 1.00    | 0.75 | 1.00   | 0.92          |
| <i>Timing of disclosure</i>             | 0.75    | 1.00 | 1.00   | 0.92          |
| <i>Average</i>                          | 0.36    | 0.54 | 0.71   | 0.54          |
| <b>Explanation</b>                      |         |      |        |               |
| <i>Refusal of accommodation</i>         | 0.50    | 0.25 | 0.00   | 0.25          |
| <i>Retaliation</i>                      | 0.25    | 0.25 | 0.00   | 0.17          |
| <i>Direct threat</i>                    | 0.50    | 0.00 | 0.50   | 0.33          |
| <i>Reassignment</i>                     | 0.00    | 0.00 | 0.00   | 0.00          |
| <i>Interviewing</i>                     | 0.00    | 0.00 | 0.00   | 0.00          |
| <i>Exacerbating a condition</i>         | 1.00    | 0.75 | 1.00   | 0.92          |
| <i>Timing of disclosure</i>             | 0.75    | 0.75 | 1.00   | 0.83          |
| <i>Average</i>                          | 0.43    | 0.29 | 0.36   | 0.36          |
| <b>Inability to accommodate</b>         |         |      |        |               |
| <i>Prolonged absence</i>                | 0.75    | 0.50 | 0.50   | 0.58          |
| <i>Removing essential job functions</i> | 0.75    | 0.50 | 1.00   | 0.75          |
| <i>Facility operation</i>               | 0.50    | 0.17 | 0.50   | 0.39          |
| <i>Infringement</i>                     | 0.75    | 1.00 | 1.00   | 0.92          |
| <i>Financial ability</i>                | 0.50    | 0.67 | 0.83   | 0.67          |
| <i>Persistent refusal</i>               | 0.25    | 0.00 | 0.00   | 0.08          |
| <i>Workplace redesign</i>               | 0.50    | 0.67 | 0.50   | 0.56          |
| <i>Average</i>                          | 0.57    | 0.50 | 0.62   | 0.56          |
| <b>Explanation</b>                      |         |      |        |               |
| <i>Prolonged absence</i>                | 0.50    | 0.30 | 0.30   | 0.37          |
| <i>Removing essential job functions</i> | 0.75    | 0.00 | 0.17   | 0.31          |
| <i>Facility operation</i>               | 0.50    | 0.00 | 0.00   | 0.17          |
| <i>Infringement</i>                     | 0.75    | 0.67 | 1.00   | 0.81          |
| <i>Financial ability</i>                | 0.00    | 0.67 | 0.67   | 0.45          |
| <i>Persistent refusal</i>               | 0.25    | 0.00 | 0.30   | 0.18          |
| <i>Workplace redesign</i>               | 0.25    | 0.30 | 0.00   | 0.18          |
| <i>Average</i>                          | 0.43    | 0.28 | 0.35   | 0.35          |
| <b>Post-training</b>                    |         |      |        |               |
| <b>Discrimination</b>                   |         |      |        |               |
| <i>Refusal of accommodation</i>         | 1.00    | 0.75 | 0.75   | 0.83          |
| <i>Retaliation</i>                      | 1.00    | 0.75 | 0.50   | 0.75          |
| <i>Direct threat</i>                    | 0.50    | 0.50 | 0.50   | 0.50          |
| <i>Reassignment</i>                     | 0.75    | 0.75 | 0.50   | 0.67          |
| <i>Interviewing</i>                     | 1.00    | 0.25 | 0.00   | 0.42          |
| <i>Exacerbating a condition</i>         | 1.00    | 0.75 | 1.00   | 0.92          |
| <i>Timing of disclosure</i>             | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Average</i>                          | 0.89    | 0.68 | 0.61   | 0.73          |
| <b>Explanation</b>                      |         |      |        |               |
| <i>Refusal of accommodation</i>         | 1.00    | 0.75 | 0.75   | 0.83          |
| <i>Retaliation</i>                      | 1.00    | 0.75 | 0.50   | 0.75          |
| <i>Direct threat</i>                    | 0.75    | 0.25 | 0.25   | 0.42          |
| <i>Reassignment</i>                     | 0.50    | 0.50 | 0.25   | 0.42          |
| <i>Interviewing</i>                     | 1.00    | 0.25 | 0.50   | 0.58          |
| <i>Exacerbating a condition</i>         | 1.00    | 0.75 | 1.00   | 0.92          |
| <i>Timing of disclosure</i>             | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Average</i>                          | 0.89    | 0.61 | 0.61   | 0.70          |

Table 3. Cont.

| Item                                    | Christa | Nate | Justin | Average Score |
|-----------------------------------------|---------|------|--------|---------------|
| <b>Inability to accommodate</b>         |         |      |        |               |
| <i>Prolonged absence</i>                | 1.00    | 1.00 | 0.75   | 0.92          |
| <i>Removing essential job functions</i> | 1.00    | 0.50 | 1.00   | 0.83          |
| <i>Facility operation</i>               | 0.50    | 1.00 | 0.50   | 0.67          |
| <i>Infringement</i>                     | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Financial ability</i>                | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Persistent refusal</i>               | 0.00    | 0.00 | 0.50   | 0.17          |
| <i>Workplace redesign</i>               | 0.50    | 1.00 | 0.75   | 0.75          |
| Average                                 | 0.71    | 0.79 | 0.79   | 0.76          |
| <b>Explanation</b>                      |         |      |        |               |
| <i>Prolonged absence</i>                | 0.75    | 1.00 | 0.75   | 0.83          |
| <i>Removing essential job functions</i> | 1.00    | 0.50 | 0.75   | 0.75          |
| <i>Facility operation</i>               | 0.50    | 1.00 | 0.50   | 0.67          |
| <i>Infringement</i>                     | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Financial ability</i>                | 1.00    | 1.00 | 1.00   | 1.00          |
| <i>Persistent refusal</i>               | 0.00    | 0.00 | 1.00   | 0.33          |
| <i>Workplace redesign</i>               | 0.50    | 1.00 | 0.75   | 0.75          |
| Average                                 | 0.68    | 0.79 | 0.82   | 0.76          |

### 3.3. Social Validity

Social validity responses are shown in Table 4. When asked, Christa described satisfaction with the number, length, and timing of sessions and the teaching style. She did not leave any additional comments in the open-ended feedback section of the social validity form. Nate's responses were like Christa's, except that he expressed that he wished sessions were held more often. Nate left a short statement in his open-ended feedback, stating, "Very fun and informative sessions". Finally, Justin also responded with high levels of satisfaction and left open-ended feedback: "I noticed throughout the testing on scenarios that all the scenarios would repeat, and I'd suggest that going forward to make the scenarios more interesting you could maybe randomize scenarios a bit more so that it doesn't feel like it's repeating". All participants described their knowledge of each category as "a lot", except for Justin, who rated his knowledge of inability to accommodate as "very much".

Table 4. Social Validity Feedback.

| Participant                           | Christa                  | Nate                                | Justin                   |
|---------------------------------------|--------------------------|-------------------------------------|--------------------------|
| Style of teaching                     | Very well                | Very well                           | Very well                |
| Number of sessions                    | Liked number of sessions | Liked number of sessions            | Liked number of sessions |
| Length of sessions                    | Liked length of sessions | Liked length of sessions            | Liked length of sessions |
| Timing of sessions                    | Liked timing of sessions | Wish we had met a little more often | Liked timing of sessions |
| Knowledge of ADA                      | 4/5                      | 4/5                                 | 4/5                      |
| Knowledge of discrimination           | 4/5                      | 4/5                                 | 4/5                      |
| Knowledge of inability to accommodate | 4/5                      | 4/5                                 | 5/5                      |

Note: Specific wording and response options of each question included in Appendix C.

## 4. Discussion

This study aimed to evaluate the use of an instructional method like that used by Sievert et al. [54] to teach members of the autism community about the ADA. Participants were exposed to discrimination training of rights violations via written and verbal instructions, modeling, practice, and feedback using a series of visually presented text scenarios. They responded to questions about the content of these scenarios and justified their responses. Results suggest that participant performance improved following training, and responses to a social validity questionnaire indicate that participants enjoyed the style of teaching,



number, length, and timing of sessions. Participants also self-reported increased knowledge of the ADA including issues related to discrimination and inability to accommodate.

To our knowledge, no previous study has examined teaching ADA knowledge to individuals from the autism community. Instruction on and practice with self-advocacy behaviors may increase the rate at which an individual recognizes and responds to situations related to employment discrimination. Participants of this study may have not only become more knowledgeable of common situations related to employment discrimination but may also be in a better position to assess future work placements for these occurrences. However, the present study did not evaluate performance of self-advocacy in role-play scenarios. The results of this study partially replicate the findings of Sievert et al. [54] in several ways. First, participants in both studies began training with an existing skillset (i.e., baseline performance between 30 and 60% correct). However, Sievert et al. [54] reported participant performance increased to 90% or higher during post-training probes, while participants in the present study scored in the 65–85% range during post-training probes. This is likely due to the difference in training materials and procedure. For example, in their examination of “Personal Rights”, Sievert et al. [54] included seven principles, such as the right to marry, show physical affection, and vote. Participants of Sievert et al. [54] were required to achieve a mastery criterion (typically 2–5 consecutive correct responses to different scenarios) to advance to the next principle. While we elected to only use one practice point due to time constraints, this additional practice may help to explain the discrepancy between results of the two studies.

In further comparison to Sievert et al. [54], this study used several empirically validated methods of increasing response accuracy. These included instructor modeling, presentation of feedback, rehearsal based on researcher feedback, and use of topographically identical stimuli in different probes. These methods may have collectively produced the initial increase in post-training probe scores by participants. However, several factors also may explain the lack of a more notable increase, as well as the general drop in maintenance performance. First, the instructions were short. As compared to true BST, a mastery criterion was not enforced during instruction, though we did use a model–response–feedback error correction procedure. The researchers also allowed for significant response topography variation (a participant reply could be exceptionally long, short, personal, or objective, so long as it contained (and did not internally contradict) the correct response).

The discrepancy in accurate participant responses to certain types of scenarios is of interest. For example, participants scored an average of 80% correct to scenarios related to infringement in baseline but scored less than 30% on average to scenarios related to retaliation. This may be due to the way that certain scenarios were written. For example, for principles related to persistent refusal, participants tended to focus less on the essential or nonessential nature of the task being accommodated and more on the *rejection* of a suggested accommodation. Alternatively, it may be that participants had some history with certain categories of scenarios either directly or indirectly. For example, scenarios that dealt with exacerbating a condition resulted in 92% correct responses during baseline.

Regarding social validity, participants reported satisfaction with meeting once or twice a week for sessions of about an hour in length. Participants also self-rated their knowledge of target areas to be high, typically with a response of “a lot” (a score of four) when asked about their post-training knowledge. One participant (Christa) did not leave an open-ended response, another (Nate) left a short positive response, and the third (Justin) left a longer response that highlighted potential problems, most notably alluding to a rehearsal effect. These high ratings may be due to several factors including the responsiveness of scheduling according to participant availability and the presentation of materials during all sessions. Participants typically met at the same time and day each week, but these times and dates could change based on participant need, something the participants appreciated. Furthermore, the first author encouraged participants to ask questions, and to discuss points, to improve comprehension.

Finally, as noted above, this study did not teach participants how to respond to situations identified as violating rights once they were identified as discriminatory. To our knowledge, no peer-reviewed manuscript has examined this to date with members of the autism community, though based on the example of Sievert et al. [54], methods such as role play will be effective in future studies.

#### 4.1. Limitations

There are limitations to this study. First, Justin's comment ("I noticed throughout the testing on scenarios that all the scenarios would repeat, and I'd suggest that going forward to make the scenarios more interesting you could maybe randomize scenarios a bit more so that it doesn't feel like it's repeating") highlights the potential problem of a rehearsal effect. This study re-used scenarios in baseline and post-training, and the scenarios used in training were topographically similar. Justin's specific response points to a problem both of reduced engagement and a potential rehearsal effect. This may have formed an artifact in participant responses by including unnecessary (and potentially distracting or incorrect) details in multiple answers across sections. While the researchers re-used material to minimize the chance of item-specific effects that differed across probes, future research should aim to use varied items to address this problem.

Second, the scenarios used in the study could improve. These were modeled in length and content after scenario examples from Sievert et al. [54]. However, some scenarios may have lacked clarity or sufficient detail for participants to respond accurately. For example, one scenario testing reassignment (intended to highlight qualifications for such an event) included the phrase "denied based on his disability status" to describe the lack of an automatic, free transfer process for a worker with a disability. Some participant replies focused on this phrase and interpreted it as discriminatory. The item analysis also highlighted several scenarios that were particularly difficult or easy, which could be a good axis for future examination and scenario refinement.

Third, the first author met with participants on an individual basis. This was typically not a problem, and participants met weekly or semiweekly as needed. However, participants did sometimes miss sessions due to double-booking, illness, travel, or simple forgetting, which introduced increased latency between sessions as a potential confounding variable. The researchers have insufficient data to decisively identify any effects of this at the time, but more regular meetings with participants would remove this potentially confounding variable.

Fourth, this study was conducted via Zoom to increase accessibility and flexibility for participants, but it meant that each session had a reduced environmental control compared to what might be feasible with in-person sessions, especially given that participants often joined from locations they identified as their "house", "apartment", or "home". For example, Christa periodically experienced interruptions from a pet, while Nate and Justin experienced session disruptions from their internet usage. The effects of this reduced environmental control are not clear.

Fifth, due to time constraints for the study, sessions were limited to baseline, training, and a maximum of two post-training probes for each response category. The small number of data points per condition limit the extent to which experimental control is demonstrated and therefore limit the extent to which beneficial changes can be attributed to the intervention. Although the effects were replicated across three participants and two response categories (i.e., discrimination-related principles and inability to accommodate-related principles), future research should extend post-training probes to demonstrate a higher level of experimental control.

Sixth, this study did not make use of Wolf's [56] recommendations related to social importance of the effects of the intervention. The feedback acquired from participants via the social validity questionnaire developed for this study is promising, but additional questions explicitly related to their perceptions of the effectiveness of the training, as well as

consultation with other stakeholders (e.g., varying autism community members, clinicians, and caregivers), will be beneficial in future studies.

Finally, this study was a preliminary step in addressing ADA knowledge in the workplace and as such was not a full replication of Sievert et al. [54]. Sievert et al. [54] made use of a second component in which participants role-played responses to legal rights violations, including assertive speech and communicating with individuals based on the success (or ineffectiveness) of communicating with others (e.g., if a doctor would not respect their legal right, participants might go to an office manager or review board). This study only aimed to imitate the first component of Sievert et al. [54], and as such instructional methods such as role play were not used. However, we encourage future researchers to use this method.

#### 4.2. Future Directions

Despite the noted limitations, to the researchers' knowledge, this is the first study to examine teaching ADA knowledge to autistic adults. There is accordingly ample room for future studies to investigate and iterate on the methods used herein. The researchers suggest potential avenues for future research.

First, future research should aim to recruit a wider demographic group, particularly regarding age, race, ethnicity, and neurodiversity. The participants of this study were all White, autistic, and English-speaking and could maintain focus for prolonged periods of time. Future research should measure the presence of other psychological diagnoses and compare autistic participants with one or more additional diagnoses, autistic participants without an additional diagnosis, and non-autistic participants.

Second, future research should re-examine these topics using different scenarios and use more than one scenario during practice sessions. It is possible that the elevated levels of performance by participants in Sievert et al. [54] was due to this additional practice with different scenarios, rather than minor topographical iterations like those used in the present study. This change may also increase generality and maintenance of the knowledge acquired during training.

Third, in Sievert et al. [54], participants not only verbally identified rights and principles but practiced advocating during role-play sessions. The researchers in Sievert et al. [54] provided a model for how to articulate a self-advocacy request and what to do if that request was met with resistance. Future research on this topic may benefit from the same proceedings. Participants in these future studies might learn how to phrase an accommodation request via email or how to disclose a diagnosis to justify an accommodation request. Future research could evaluate practice with this skill in different modes, including in writing, over digital communication, and face-to-face.

Fourth, it may be interesting to modify the questions that are asked of participants following each training scenario and, in turn, participant responses. Open-ended questions were included in this study to follow the example provided by Sievert et al. [54]; however, it is possible that close-ended questions can lead to better maintenance and generalization of the skills acquired. For example, rather than asking "Why or why not?", an experimenter could ask a series of specific questions, such as "Is this a case of hiring discrimination?" and "What will the employee likely lose as a result of this scenario?" This may lengthen the duration of sessions but may be effective in training participants to systematically consider diverse types of employment discrimination. This may also have the added benefit of a lessened need for qualitative coding of open-ended questions.

Fifth, future research may wish to examine in-person instruction (as opposed to over Zoom), the effects of scenario refinement, scheduling training sessions more frequently, and scaling up the intervention by recruiting larger sample sizes and conducting the training in a small group format.

## 5. Conclusions

In conclusion, this study sets a foundation for teaching employment-related ADA knowledge to members of the autism community. Three autistic participants demonstrated slightly increased knowledge of detecting and explaining ADA violations following training. This study is preliminary, and future research should aim to address the limitations of the study to strengthen these findings.

**Author Contributions:** Conceptualization, D.S.II and R.R.; methodology, D.S.II; software, D.S.II; validation, D.S.II and R.R.; formal analysis, D.S.II; investigation, D.S.II; resources, D.S.II; data curation, D.S.II; writing—original draft preparation, D.S.II; writing—review and editing, R.R.; visualization, D.S.II; supervision, R.R.; project administration, D.S.II; funding acquisition, D.S.II. All authors have read and agreed to the published version of the manuscript.

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**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of the University of Massachusetts Lowell, (17 January 2023).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author. The data are not publicly available.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A. Scenarios (Employment Discrimination)

Testing scenarios (pre-training and post-training)

1. Principle: Refusal of accommodation
  - a. Faysal works at the police station, where he works as a dispatcher. Due to the nature of his status as an autistic individual, Faysal has recently requested an accommodation to reduce the number of hours he works; however, this request has been denied, with the stated reason being that this would highlight his disability status.
    - i. *Answer: Likely to be discrimination*
    - ii. *Key information: Highlight disability status.*
  - b. Faysal works at the police station, where he works as a dispatcher. Due to the nature of his status as an amputee (left arm), Faysal has recently requested an accommodation to reduce the number of hours he works; however, this request has been denied, with the stated reason being that this would conflict with an essential job requirement.
    - i. *Answer: Unlikely to be discrimination*
    - ii. *Key information: Conflicts with essential job requirement.*
2. Principle: Retaliation
  - a. Natalya works at a local university where she serves as a financial officer paid by the hour. Due to her experience with social anxiety, she recently requested accommodation to work from home. Accordingly, she received her requested accommodation and reduced hours worked overall.
    - i. *Answer: Likely to be discrimination*
    - ii. *Key information: Reduction in work hours results in lower pay unrelated to accommodation.*

- b. Natalya works at a local university where she serves as a financial officer paid by the hour. Due to her experience with social anxiety, she recently requested accommodation to work from home. Accordingly, she received her requested accommodation and tends to see her colleagues less often.
- i. *Answer: Unlikely to be discrimination*
  - ii. *Key information: Social interactions with colleagues does not reduce most important work aspects.*
3. Principle: Direct threat
- a. Rohit works at a local high school where he works as a chemistry teacher. However, due in part to his experience with PTSD (Post Traumatic Stress Disorder), one day during work he experiences a surprising burst of anger, during which he flings an object at a student and causes an injury. His superior notifies him that he constitutes a direct threat to his students and coworkers and that he will be let go. Rohit suggests that instead, he could be given accommodation to teach virtually. He is still let go shortly afterwards.
- i. *Answer: Unlikely to be discrimination*
  - ii. *Key information: Presents direct threat, accommodation would conflict with core teaching responsibilities (being physically present).*
- b. Rohit works at a local high school where he works as a chemistry teacher. Rohit is also HIV positive. One day during work he is cut and, without his knowledge, spreads droplets of blood around the chemistry lab. His superior notifies him that he constitutes a direct threat to his students and coworkers and that he will be let go. Rohit suggests that instead, he could be given accommodation to not work with sharp objects or open flames. He is still let go shortly afterwards.
- i. *Answer: Likely to be discrimination*
  - ii. *Key information: Presents direct threat, could be controlled with reasonable accommodation.*
4. Principle: Reassignment
- a. Jerome is working as a lead program developer. However, recent events have caused him to officially register with his employer as having a major depressive disorder. Sometime afterwards, Jerome requests reassignment within his employment, specifically to work as a lead app developer, as the work is more to his liking. His employer denies him an automatic transfer based on disability status and instead states that he must compete for the position internally.
- i. *Answer: Unlikely to be discrimination*
  - ii. *Key information: Transfer based on preference, not disability status; transfer position is likely to be in competition.*
- b. Jerome is working as a park ranger. However, recent events have caused him to officially register with his employer as having arthritis. Sometime afterwards, Jerome requests reassignment within his employment, specifically to work as the local natural museum attendant, as the arthritis is disrupting his ability to work in the field. His employer denies him an automatic transfer based on disability status and instead states that he must compete for the position internally.
- i. *Answer: Likely to be discrimination*
  - ii. *Key information: Transfer based on disability status; transfer position unlikely to be in competition.*

5. Principle: Interviewing
  - a. Fatima is applying for a position as a computer programmer. As per her experience with major depressive disorder, she requests to have an alternative to a job interview, as she thinks that needing to interview will unfairly disadvantage her. The employer declines to offer the alternative, stating that the interview is an important part of the application and selection process.
    - i. Answer: Likely to be discrimination
    - ii. Key information: Contents of interview unlikely to be assessing essential job functions, given job.
  - b. Fatima is applying for a position as a computer programmer. As per her experience with visual impairment, she requests to have an alternative to a job interview, as she thinks that needing to interview will unfairly disadvantage her. The employer declines to offer the alternative, stating that the interview is an important part of the application and selection process.
    - i. Answer: Likely to be discrimination
    - ii. Key information: Contents of interview unlikely to be assessing essential job functions, given job.
6. Principle: Exacerbating a condition
  - a. Santiago works as a professor and has recently acquired and disclosed arthritis. However, he is soon asked to perform a new task, teaching on the ground floor of a new building, as the elevator in this building is not working. Santiago then proceeds to teach the class as assigned.
    - i. Answer: Unlikely to be discrimination
    - ii. Key information: Assignment has low chance of exacerbating Santiago's arthritis.
  - b. Santiago works as a professor and has recently acquired and disclosed a social anxiety diagnosis. However, he is soon asked to perform a new task, teaching an online class of 55 students three times weekly, as meeting digitally is easier on his social anxiety. He then proceeds to teach the class as assigned.
    - i. Answer: Unlikely to be discrimination
    - ii. Key information: Assignment has low chance of exacerbating Santiago's arthritis.
7. Principle: Timing of disclosure
  - a. Mia has just applied for a job to work as a shipping and receiving staff member. Mia also has epilepsy but does not disclose this during the application process. When Mia is offered the position, she accepts. The job initially proves difficult due to her epilepsy, but Mia does not disclose her disability status and continues to work.
    - i. Answer: Unlikely to be discrimination
    - ii. Key information: Mia did not disclose; not responsibility of employer to accommodate non-salient disability.
  - b. Mia has just applied for a job to work as a shipping and receiving staff member. Mia also has epilepsy but does not disclose this during the application process. When Mia is offered the position, she accepts. The job initially proves difficult due to her epilepsy, whereupon she discloses her diagnosis and receives accommodation based on her disability status.
    - i. Answer: Unlikely to be discrimination
    - ii. Key information: Upon disclosure, Mia is accommodated.

#### Training scenarios (modeled by researcher)

1. Faysal works at the police station, where he works as a dispatcher. Due to the nature of his status as an amputee (left arm), Faysal has recently requested an accommodation to reduce the number of hours he works; however, this request has been denied,



with the stated reason being that this would increase the risk of workplace bullying and ostracism.

i. *Answer: Likely to be discrimination*

ii. *Key information: Cannot decline due to fear of worker experience.*

2. Natalya works at a local hospital where she serves as a surgeon. Due to her experience with diabetes, she recently requested accommodation to have shorter and less intensive operations. Accordingly, she received her requested accommodation and tends to work with different types of operations than she did before.

i. *Answer: Unlikely to be discrimination*

ii. *Key information: Core features of Natalya's employment experience preserved.*

3. Rohit works at a local high school where he works as a chemistry teacher. However, due in part to his experience with PTSD, one day during work he experiences an anxiety attack, during which a fire in the lab starts. His superior notifies him that he constitutes a direct threat to his students and coworkers and that he will be let go. Rohit suggests that instead, he could be given accommodation to not work with chemicals or open flames. He is still let go shortly afterwards.

i. *Answer: Likely to be discrimination*

ii. *Key information: Direct threat may exist, could be controlled by stated accommodation.*

4. Jerome is working as a lead program developer. However, recent events have caused him to officially register with his employer as having a major depressive disorder. Sometime afterwards, Jerome requests reassignment within his employment, specifically to work as an assistant app developer, as the schedule is less demanding. His employer denies him an automatic transfer based on disability status and instead states that he must compete for the position internally.

i. *Answer: Likely to be discrimination*

ii. *Key information: Transfer based on disability status; transfer position unlikely to be in competition.*

5. Fatima is applying for a position as an automobile salesperson. As per her experience with major depressive disorder, she requests to have an alternative to a job interview, as she thinks that needing to interview will unfairly disadvantage her. The employer declines to offer the alternative, stating that the interview is an important part of the application and selection process.

i. *Answer: Unlikely to be discrimination*

ii. *Key information: Interview likely evaluates essential functions (social skill) of position.*

6. Santiago works as a professor and has recently acquired and disclosed arthritis. However, he is soon asked to perform a new task, teaching on the fourth floor of a new building, which he thinks will be especially hard for him thanks to his arthritis, as the elevator in this building is not working. He asks for a reassignment to teach on the ground floor of the building, which is then refused.

i. *Answer: Likely to be discrimination*

ii. *Key information: Assignment likely to exacerbate arthritis, accommodation would preserve essential functions.*

7. Mia has just applied for a job to work as a shipping and receiving staff member. Mia is also autistic with sensory sensitivity but does not disclose this during the application process. When Mia is offered the position, she accepts. The job initially proves difficult due to her sensory sensitivity, whereupon she discloses her diagnosis and receives accommodation based on her disability status.

i. *Answer: Unlikely to be discrimination*

ii. *Key information: Did not disclose non-obvious disability; accommodated upon disclosure.*

Training scenarios (performed by participant with feedback from researcher)

1. Faysal works at the police station, where he works as a dispatcher. Due to the nature of his status as an autistic individual, Faysal has recently requested an accommodation to reduce the number of hours he works; however, this request has been denied, with the stated reason being that this would conflict with an essential job requirement.
  - i. Answer: Unlikely to be discrimination
  - ii. Key information: Conflicts with essential job requirement.
2. Natalya works at a local hospital where she serves as a surgeon. Due to her experience with diabetes, she recently requested accommodation to have shorter and less intensive operations. Accordingly, she received her requested accommodation and a reduced number of clients received overall.
  - i. Answer: Likely to be discrimination
  - ii. Key information: Reduction in opportunity to work without clear explanation.
3. Rohit works at a local high school where he works as a chemistry teacher. Rohit is also HIV positive. One day during work he must physically restrain a student, during which he is cut and his blood drips onto the floor. His superior notifies him that he constitutes a direct threat to his students and coworkers and that he will be let go. Rohit suggests that instead, he could be given accommodation to not have to physically confront students. He is still let go shortly afterwards.
  - i. Answer: Likely to be discrimination
  - ii. Key information: Restraint likely not essential job function.
4. Jerome is working as a park ranger. However, recent events have caused him to officially register with his employer as having arthritis. Sometime afterwards, Jerome requests reassignment within his employment, specifically to work as the local natural museum attendant, as the work is more to his liking. His employer denies him an automatic transfer based on disability status and instead states that he must compete for the position internally.
  - i. Answer: Unlikely to be discrimination
  - ii. Key information: Transfer based on preference, not disability status.
5. Fatima is applying for a position as an automobile salesperson. As per her experience with visual impairment, she requests to have an alternative to a job interview, as she thinks that needing to interview will unfairly disadvantage her. The employer declines to offer the alternative, stating that the interview is an important part of the application and selection process.
  - i. Answer: Unlikely to be discrimination
  - ii. Key information: Interview likely evaluates essential functions (social skill) of position.
6. Santiago works as a professor and has recently acquired and disclosed a social anxiety diagnosis. However, he is soon asked to perform a new task, teaching a class of 55 students three times weekly. He thinks it will be especially hard for him thanks to his social anxiety. He asks for a reassignment to teach an online course instead, which is then refused.
  - i. Answer: Likely to be discrimination
  - ii. Key information: Assignment likely to exacerbate arthritis, accommodation would preserve essential functions.
7. Mia has just applied for a job to work as a shipping and receiving staff member. Mia is also autistic with sensory sensitivity but does not disclose this during the application process. When Mia is offered the position, she accepts. The job initially proves difficult due to her sensory sensitivity, but Mia does not disclose her disability status and continues to work.
  - i. Answer: Unlikely to be discrimination
  - ii. Key information: Mia did not disclose; not responsibility of employer to accommodate non-salient disability.

## Appendix B. Scenarios (Inability to Accommodate)

Testing scenarios (pre-training and post-training)

1. Principle: Prolonged absence
  - a. Fernando is a worker with diabetes who recently left to get an important operation with a recovery period of two weeks. His employer reassigned tasks to cover for him while he was absent. The operation was successful, but a complication ensures that Fernando's recovery will be longer than expected. Specifically, Fernando's doctors say that he will be able to return after four weeks rather than two. Fernando accordingly notifies his job and uses his saved sick and medical leave to cover the difference.
    - i. Answer: Could accommodate
    - ii. Key information: Clear leave period, covering with existing leave.
  - b. Fernando is a worker with epilepsy who recently left to get an important operation with a recovery period of two weeks and has used up all his sick and medical leave to cover this two-week period. The operation was successful, but a complication ensures that Fernando's recovery will be longer than expected. Specifically, Fernando's doctors are not able to provide a time that Fernando would be medically able to return. Fernando accordingly notifies his job and asks for his leave to be extended accordingly based on his disability status.
    - i. Answer: Could not accommodate
    - ii. Key information: Unclear leave period, non-use of employee coverage.
2. Principle: Removal of essential job functions
  - a. Mikael is a retail store clerk with a disclosed social anxiety diagnosis. He asks for accommodation based on his disability status to not have to advertise company programs during client checkouts.
    - i. Answer: Could accommodate
    - ii. Key information: Preserves essential functions.
  - b. Mikael is a home repair electrician with a disclosed arthritis diagnosis. He asks for accommodation based on his disability status to receive additional tools to minimize bending over during work.
    - i. Answer: Could accommodate
    - ii. Key information: Preserves essential functions (may increase ability).
3. Principle: Facility operation
  - a. Jamal is a project manager with ADHD (Attention Deficit Hyperactivity Disorder), who needs to be present at a project for it to begin. According to the nature of his disability, he requests accommodation that the traditional project supervisors' meeting start at 10:00 a.m. instead of 9:00 a.m., such that he can be certain he will always be present for the start of the meeting.
    - i. Answer: Could accommodate
    - ii. Key information: "Traditional" meeting timing unlikely to be essential.
  - b. Jamal is a project manager who uses a wheelchair, who needs to be present at a project for it to begin. According to the nature of his disability, he requests accommodation that shifts start at 10:00 a.m. instead of 9:00 a.m., such that he can be certain he will always be present for the start of work on the project.
    - i. Answer: Could not accommodate
    - ii. Key information: Start of work shift likely to be essential.
4. Principle: Infringing on rights of other workers
  - a. Robbie is a worker with lupus. In his job as a CNC machinist, Robbie is trained at a key point in the process. However, due to his experience of lupus, Robbie asks for accommodation wherein he can begin his shift up to 15 min later than

usual, based on how his symptoms are progressing that day. Due to the nature of this position, other workers will arrive but will still be paid before Robbie arrives and the process can resume.

i. *Answer: Could accommodate*

ii. *Key information: Not causing loss of others' pay.*

- b. Robbie is a worker with bipolar disorder. In his job as a CNC machinist, Robbie is trained at a key point in the process. However, due to his experience of bipolar, Robbie asks for accommodation wherein he can begin his shift up to a half-hour later than usual, based on how his symptoms are progressing that day. Due to the nature of this position, other workers will arrive but will not be paid until Robbie arrives and the process can resume.

i. *Answer: Could not accommodate*

ii. *Key information: Causing loss of others' pay.*

5. Principle: Financial ability of the employer

- a. René is a retail store associate who is legally blind due to macular degeneration. As René is otherwise qualified to work, René asks for the materials produced for employees (such as the employee handbook and any other written employee documents or messages) to also be produced in Braille so that she has a reference for it. Her employer, who produces an average yearly profit of \$100,000, is currently deciding if it is in their ability to meet this request as it would have an estimated cost of approximately \$5000.

i. *Answer: Could accommodate*

ii. *Key information: High cost, financial ability to cover.*

- b. René is a retail store associate who is legally blind due to her experience of a stroke. As René is otherwise qualified to work, René asks for the materials produced for employees (such as the employee handbook and any other written employee documents or messages) to also be produced in Braille so that she has a reference for it. Her employer, who produces an average yearly profit of \$10,000, is currently deciding if it is in their ability to meet this request as it would have an estimated cost of approximately \$5000.

i. *Answer: Could not accommodate*

ii. *Key information: High cost, lack of financial ability to cover.*

6. Principle: Persistent refusal of accommodation

- a. Bridget is a worker with major depressive disorder who is pursuing a workplace accommodation for a non-essential job function. Bridget has suggested accommodation that, while likely to be successful, is out of the range of what the employer can do. Their employer has suggested three other accommodation that would address Bridget's stated accommodation needs; however, Bridget has declined to accept these accommodations in favor of her suggestion.

i. *Answer: Could accommodate*

ii. *Key information: Accommodation targets non-essential job function.*

- b. Bridget is a worker with muscular dystrophy who is pursuing a workplace accommodation for a non-essential job function. Bridget has suggested accommodation that, while likely to be successful, is out of the range of what the employer can do. Their employer has suggested one other accommodation that would address Bridget's stated accommodation needs; however, Bridget has declined to accept these accommodations in favor of her suggestion.

i. *Answer: Could accommodate*

ii. *Key information: Accommodation targets non-essential job function.*

## 7. Principle: Workplace redesign

- a. Donovan is applying to work at a small mechanic shop. However, Donovan discloses that he has an auditory sensitivity due to his personal experience with autism and asks if he could have accommodation to reduce noise in his workspace. The employer's HR representative suggests that workers should regularly attend to shop machines to prevent unusual loud noises.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Ongoing redesign, demands on other workers.*
- b. Donovan is applying to work at a small mechanic shop. However, Donovan discloses that he has an auditory sensitivity due to his personal experience with a recent concussion and asks if he could have accommodation to reduce noise in his workspace. The employer's HR representative suggests that Donovan could use noise-cancelling headphones during his shifts.
  - i. *Answer: Could accommodate*
  - ii. *Key information: Redesign not necessary, no demands on other workers.*

## Training scenarios (modeled by researcher)

1. Fernando is a worker with diabetes who recently left to get an important operation with a recovery period of two weeks. His employer reassigned tasks to cover for him while he was absent. The operation was successful, but a complication ensures that Fernando's recovery will be longer than expected. Specifically, Fernando's doctors say that he will be able to return after four weeks rather than two. Fernando accordingly notifies his job and uses the rest of his sick and medical leave to cover the difference.
  - i. *Answer: Could accommodate*
  - ii. *Key information: Clear leave period, covering with existing leave.*
2. Mikael is a retail store clerk with a disclosed social anxiety diagnosis. He asks for accommodation based on his disability status to not have to advertise company programs during client checkouts.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Preserves essential functions.*
3. Jamal is a project manager with ADHD, who needs to be present at a project for it to begin. According to the nature of his disability, he requests accommodation that shifts start at 10:00 a.m. instead of 9:00 a.m., such that he can be certain he will always be present for the start of work on the project.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Start of work shift likely to be essential.*
4. Robbie is a worker with lupus. In his job as a CNC machinist, Robbie is trained at a key point in the process. However, due to his experience of lupus, Robbie asks for accommodation wherein he can begin his shift up to 15 min later than usual, based on how his symptoms are progressing that day. Due to the nature of this position, other workers will arrive but will not be paid until Robbie arrives and the process can resume.
  - i. *Answer: Could accommodate*
  - ii. *Key information: Not causing loss of others' pay.*
5. René is a retail store associate who is legally blind. As René is otherwise qualified to work, René asks for the materials produced for employees (such as the employee handbook and any other written employee documents or messages) to also be produced in Braille so that she has a reference for it. Her employer, who produces an average yearly profit of \$10,000, is currently deciding if it is in their ability to meet this request as it would have an estimated cost of approximately \$5000.
  - i. *Answer: Could accommodate*
  - ii. *Key information: High cost, lack of financial ability to cover.*

6. Bridget is a worker with major depressive disorder who is pursuing a workplace accommodation so that she can perform an essential job function. Bridget has suggested accommodation that, while likely to be successful, is out of the range of what the employer can do. Their employer has suggested one other accommodation that would address Bridget's stated accommodation needs; however, Bridget has declined to accept these accommodations in favor of her suggestion.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Accommodation targets essential job function Bridget cannot perform, is not reasonable.*
7. Donovan is applying to work at a small mechanic shop. However, Donovan discloses that he has an auditory sensitivity due to his personal experience with autism and asks if he could have accommodation to reduce noise in his workspace. The employer's HR representative suggests that Donovan could use noise-cancelling headphones during his shifts.
  - i. *Answer: Could accommodate*
  - ii. *Key information: Redesign not necessary, no demands on other workers.*

Training scenarios (performed by participant with feedback from researcher)

1. Fernando is a worker with diabetes who recently left to get an important operation with a recovery period of two weeks. His employer reassigned tasks to cover for him while he was absent. The operation was successful, but a complication ensures that Fernando's recovery will be longer than expected. Specifically, Fernando's doctors are not able to provide a time that Fernando would be medically able to return. Fernando accordingly notifies his job and asks for his leave to be extended accordingly.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Unclear leave period, non-use of employee coverage.*
2. Mikael is a home repair electrician with a disclosed arthritis diagnosis. He asks for accommodation based on his disability status to identify electrical issues but not fix them if it would require bending over.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Conflicts with essential functions.*
3. Jamal is a project manager who uses a wheelchair, who needs to be present at a project for it to begin. According to the nature of his disability, he requests accommodation that the traditional project supervisors' meeting start at 10:00 a.m. instead of 9:00 a.m., such that he can be certain he will always be present for the start of the meeting.
  - i. *Answer: Could accommodate*
  - ii. *Key information: "Traditional" project meeting time unlikely to be essential.*
4. Robbie is a worker with bipolar disorder. In his job as a CNC machinist, Robbie is trained at a key point in the process. However, due to his experience of bipolar, Robbie asks for accommodation wherein he can begin his shift up to a half-hour later than usual, based on how his symptoms are progressing that day. Due to the nature of this position, other workers will arrive but will still be paid until Robbie arrives and the process can resume.
  - i. *Answer: Could not accommodate*
  - ii. *Key information: Causing loss of others' pay.*
5. René is a retail store associate who is dyslexic. As René is otherwise qualified to work, René asks for the materials produced for employees (such as the employee handbook and any other written employee documents or messages) to also be produced in Braille so that she has a reference for it. Her employer, who produces an average yearly profit of \$100,000, is currently deciding if it is in their ability to meet this request as it would have an estimated cost of approximately \$5000.



- i. *Answer: Could accommodate*
  - ii. *Key information: High cost, financial ability to cover.*
6. Bridget is a worker with muscular dystrophy who is pursuing a workplace accommodation for an essential job function. Bridget has suggested accommodation that, while likely to be successful, is out of the range of what the employer can do. Their employer has suggested three other accommodation that would address Bridget's stated accommodation needs; however, Bridget has declined to accept these accommodations in favor of her suggestion.
- i. *Answer: Could not accommodate*
  - ii. *Key information: Accommodation targets essential job function Bridget cannot perform, is not reasonable.*
7. Donovan is applying to work at a small mechanic shop. However, Donovan discloses that he has an auditory sensitivity due to his personal experience with a recent concussion and asks if he could have accommodation to reduce noise in his workspace. The employer's HR representative suggests that workers should regularly attend to shop machines to prevent unusual loud noises.
- i. *Answer: Could not accommodate*
  - ii. *Key information: Ongoing redesign, demands on other workers.*

### Appendix C. Social Validity Questionnaire

1. How well do you think our style of teaching taught you the information?
  - a. Very poorly
  - b. Somewhat poorly
  - c. A little poorly
  - d. I am not sure.
  - e. A little well
  - f. Somewhat well
  - g. Very well
2. How did you like the number of study sessions?
  - a. There were far too many sessions.
  - b. There were a few too many sessions.
  - c. I liked the number of sessions used.
  - d. There were a few too many sessions.
  - e. There were far too many sessions.
3. How did you like the length of study sessions?
  - a. They were much too long.
  - b. They were a little too long.
  - c. I liked the length as it was.
  - d. They were a little too short.
  - e. They were much too short.
4. How well did you like the timing of sessions (how we met once or twice a week)?
  - a. I wish that we had met much less often.
  - b. I wish that we had met a little less often.
  - c. I liked it as it was.
  - d. I wish we had met a little more often.
  - e. I wish we had met much more often.
5. How would you rate your knowledge of the Americans with Disabilities Act?
  - a. Very little
  - b. A little
  - c. Some
  - d. A lot

- e. Very much
6. How would you rate your knowledge of employment discrimination based on disability status?
  - a. Very little
  - b. A little
  - c. Some
  - d. A lot
  - e. Very much
7. How would you rate your knowledge of inability to accommodate?
  - a. Very little
  - b. A little
  - c. Some
  - d. A lot
  - e. Very much
8. Is there any additional feedback you would like to give us?

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