2021-03-08

Use of Video Technology to Support Soft Skills Acquisition for Enhancing Employment Opportunities for Individuals with Autism, Intellectual and Developmental Disabilities

Cliff Guya Oliech M.S.Ed.
Duquesne University

Edith Olajumoke Oshokoya MA.Ed.
Duquesne University

Use of Video Technology to Support Soft Skills Acquisition for Enhancing Employment Opportunities for Individuals with Autism, Intellectual and Developmental Disabilities

Cliff Oliech, M.S.Ed.
Olajumoke Oshokoya, MA.Ed.

Department of Counseling, Psychology, and Special Education, Duquesne University

Author Note

We have no known conflict of interest to disclose

Correspondence concerning this article should be addressed to Cliff Oliech, 600 Forbes Avenue, 109 Canevin Hall, Pittsburgh, PA 15222. Email: oliechc@duq.edu

Abstract

Preparing individuals with Autism and Intellectual Disabilities for work is an accountability issue established through Indicators 13 and 14 of the State's Performance Plan in the Individuals with Disabilities Education Act (2004) (IDEA, 2004). Unfortunately, transitioning into jobs for individuals with Autism (ASD) or intellectual and developmental disabilities (IDD) has not been very successful to date because of the need for growth in their soft skills acquisition and use. The purpose of this systematic literature review was to establish the types of video technology (VT) used in teaching soft skills that may enhance employment opportunities for individuals with ASD and IDD. Also, to determine what soft skills researchers have targeted using the available VT interventions. This review established that the use of VT is ubiquitous. Soft skills are also commonly targeted using VT. Overall, VT's use to teach soft skills for employment is promising, as reported in this study.

Keywords: autism, video technology, soft skills, adolescents, youth

Since the reauthorization of IDEA, 2004, there has been an increase in post-secondary transition rates of individuals with disabilities because of accountability measures bequeathed upon states. Indicator 13 is the requirement of states to report the percent of youth annually with Individualized Education Programs (IEP) aged 16 (14 in Pennsylvania) and above that have an IEP that includes appropriate measurable postsecondary goals that are annually updated based upon age-appropriate transition assessment (20 U.S.C. 1416(a)(3)(B)). Indicator 14, on the other hand, is a requirement of states to report the percent of youth no longer in secondary school yet had IEPs in effect at the time they left school and were either enrolled in higher education within one year of leaving high school, competitively employed or live independently (20 U.S.C. 1416(a)(3)(B)). Therefore, preparing for employment while still in school by following realistic transition goals and obtaining post-school employment is an accountability outcome measure requirement in IDEA. Despite these accountability measures, the differences in employment outcomes for individuals with ASD and IDD have been distinct compared to peers.

While approximately 50,000 individuals with ASD turn 18 years old each year and transition into adult-based services, Shattuck et al. (2012), in a national survey, report that they are at a higher risk than adults with other disabilities for no participation in employment two years following graduation from high school. Moreover, adults with ASD and co-occurring intellectual disabilities (ID) are still underrepresented in employment than the general population (Taylor et al., 2015). Extant literature is replete with reports of high unemployment rates and underemployment of individuals with ASD and IDD (Baldwin et al., 2014; Howlin et al., 2004; Shattuck et al., 2012; Taylor et al., 2015).

These statistics are glaring for individuals with ASD and IDD due to archetypal soft skill difficulties that may bar them from obtaining and retaining meaningful employment upon graduation. *Soft skills* are defined as “desirable qualities for certain forms of employment that do not depend on acquired knowledge” (“Soft Skills”, 2019). Soft skills are skills related to attitude, cooperation, reliability, productivity, quality of work, teamwork, and communication (Clark et al., 2019). They are competencies not directly connected to specific job tasks but are considered necessary in satisfying the requirements of a job position as they involve relationships with other people in the organization that manifests in the

ability to collaborate (Cimatti, 2016). One of the reasons for poor employment outcomes amongst individuals with ASD and IDD is the lack of adequate soft skills essential to obtain and maintain employment (Lindsay et al., 2014). Therefore, it behooves educators and stakeholders to be creative by removing all imaginable constraints (Yamamoto & Karaman, 2011) by adopting video technology (VT) to improve employment outcomes for individuals with disabilities, thereby fulfilling IDEA accountability measures.

The definition of video technology adopted for this study is by Reed et al. (2011). They define *video technology* as the use of an electronic or mechanical apparatus that the practitioner can program to automatically deliver visual, auditory, or proprioceptive cues, discriminative stimuli, or display the modeling of desired behaviors (Reed et al., 2011). This literature review explores any visual and auditory stimuli delivered on an electronic device to demonstrate modeling and teaching desired behaviors (i.e., soft skills).

Existing laws buttress the need to use technology to provide accommodations and adaptations to individuals with ASD and IDD in work environments. Section 504 of the Rehabilitation Act (1974) and the Americans with Disabilities Act (1990) (ADA) requires the provision of reasonable adaptations and accommodations to individuals with a diagnosed disability that affects any major life function. Additionally, The Assistive Technology Act (2004) requires states to provide direct aid to individuals with disabilities to ensure that they have access to the technology they need to participate fully in education, employment, and independent daily living for success in their communities.

Work is the foundation for meeting human needs, including survival and power, social connection and self-determination, and well-being (Blustein, 2008). Blustein (2008) further stated that work provides opportunities to advance, social support systems, self-expression opportunities, and self-determination, which are all essential components of psychological health. Besides, the employment of individuals with ASD and IDD is likely to lead to significant and broad economic benefits (Buescher et al., 2014; Knapp et al., 2009). Through employment, they will gain financial independence, self-

fulfillment, and self-confidence (Jahoda et al., 2009). Thus, educators should endeavor to create employment opportunities for individuals with ASD and IDD.

Teaching soft skills is essential because the skills are not only widely sought by employers and organizations (Lindsay et al., 2014), but they are also widely applicable to a variety of jobs and complement the "hard skills" adorned by an individual. Soft skills as areas in need of growth pose challenges in the work environment and pose a risk for job termination and unemployment amongst individuals with ASD (Hendricks, 2010; Scott et al., 2017). Besides, poor soft skills like communication skills can create a negative impression with employers during the recruitment phase and may exclude an individual with good technical skills from being selected for employment despite being a graduate (Pauw et al., 2006) with adequate technical skills. The need to improve soft skills for enhancing the employment outcomes of individuals with disabilities is ubiquitous in the literature (Agran et al., 2016; Robles, 2012; Hendricks & Wehman, 2009; Lee & Cater, 2012). Therefore, educators need to put more effort into supporting these individuals to develop the soft skills necessary for employment.

It is common for ASD to co-exists with Intellectual Disability (ID) (Fombonne et al., 1997; Gillberg, 1999) and for individuals with ASD and IDD to exhibit co-occurring characteristics (Lecavalier et al., 2011). The coexistence between ASD and ID makes them share similarities that inform the combination of the two disabilities in this study rather than one of each. Individuals with ASD and IDD are known to experience difficulties in soft skills in the area of the job application process, interviewing, remembering and following instructions, interacting and communicating effectively with co-workers, and integrating into the workplace culture (Baldwin et al., 2014; Krieger et al., 2012; Müller et al., 2003). Also, Individuals with ASD report social anxiety (Maddox & White, 2015), limiting their ability to employ soft skills in job-seeking activities. Demonstration of targeted need in soft skills may also manifest in difficulty recognizing and responding to nonverbal cues and communication, including challenges recognizing and appropriately responding to facial expressions (Adolphs et al., 2001; Castelli, 2005). Furthermore, individuals with ASD and IDD also experience difficulties in executive functioning skills (Leung & Zakzanis, 2014), which may result in difficulty acquiring and generalizing soft skills.

These unique characteristics of ASD and IDD have rendered it difficult for individuals with their diagnoses to obtain and navigate traditional competitive jobs successfully, hence their association with poor employment and low quality of life outcomes (Howlin et al., 2004; Marriage et al., 2009).

Purpose of the study

The purpose of this literature review is to determine the types of VT that researchers and practitioners have used to target soft skills that enhance employment opportunities for individuals with ASD and IDD. Also, to determine what type of soft skills, researchers have intervened with ASD and IDD using VT interventions.

Three primary research questions will guide this study, including (a) What is the evidence for using VT interventions to teach and support soft skills for employment of individuals with ASD and IDD in the published literature? (b) What are the common types of VT interventions used to support soft skills for the employment of individuals with ASD and IDD across the literature? (c) Which soft skills are a common target for the employment of individuals with ASD and IDD using VT interventions?.

Methodology

Article Selection

The authors conducted a systematic search from nine electronic databases via Education Resources Information Centre (ERIC) EBSCOhost through Duquesne University's Gumberg Library. The authors developed descriptors from a combination of the following keywords: "autism," "intellectual and developmental disabilities," "video technology," "soft skills," "adolescents," and "adults," then combined with different variations of Boolean operators**,** before running the final search.

Then the authors limited the search to peer-reviewed journal articles published in the English language, which yielded 810 articles. A total of 463 studies remained after the removal of duplicates through EndNote X9.2 citation software**.** The authors then screened abstracts and titles of the 463 studies that remained for eligibility. A total of 24 studies qualified for full review because they satisfied the inclusion criteria after screening the titles and abstracts. Further screening led to eliminating seven studies that did not meet inclusion criteria after a full-text review. A total of 17 studies satisfied the inclusion

criteria described in the following section. The authors then conducted a backward search by analyzing the 17 study's reference sections to establish if additional works that the qualifying studies may have cited would be relevant to this study. The authors also used the forward search citation feature on Google Scholar (i.e., cited by function) to establish how other researchers have cited the 17 original studies in subsequent studies. This backward and forward search procedure yielded an additional two studies which met the inclusion criteria. In the end, the authors included a total of 19 (N = 19) studies that met the inclusion criteria for qualitative analysis (see Figure 1).

Inclusion and Exclusion Criteria

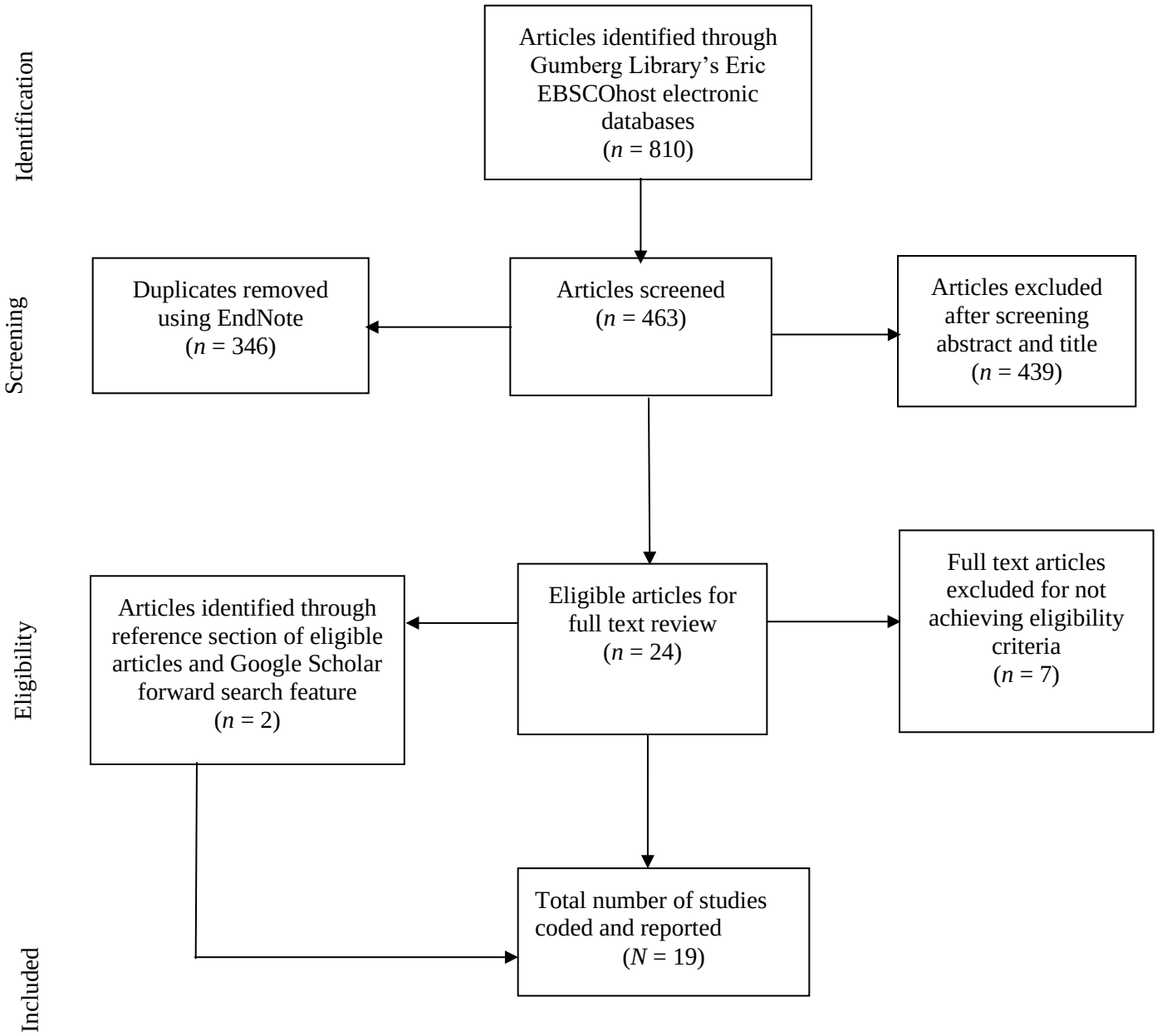
Studies were included in the analysis if it was: (a) an experimental design (b) published in the English language; (c) a peer-reviewed journal article; (d) participants were transition-aged individuals (14 years old and above) with a diagnosis of ASD or IDD (e) was conducted in a vocational classroom, a laboratory in a school or, a real or simulated work environment; (f) the study applied VT intervention or its variation; (g) the VT intervention used focused on the acquisition and or maintenance of soft skills for employment and lastly; (h) the study had a graphical presentation of the results. The researchers excluded studies if they were either literature reviews, systematic reviews, or did not meet any inclusion criteria.

Article Review and Coding

The authors coded the qualifying studies for the following variables: Journal type; study design; participant characteristics, study location; independent variable; dependent variable; therapist (interventionist), social validity and; maintenance and generalization.

Figure 1

Flow Diagram of Study Search Procedures[1]



[1] Adapted from http://prisma-statement.org/PRISMAStatement/FlowDiagram

Results

Independent Variables

There were eight different types of VT interventions implemented across 19 studies. Video modeling (VM) (*n* =7) (Bahcali & Ozen, 2019; Bross et al., 2019; Morgan & Salzberg, 1992; Rausa et al., 2016; Park et al., 2020; Walsh et al., 2018; Yakubova & Zeleke, 2016) was the most common type of VT intervention used to support soft skills acquisition and development for the employment of individuals with ASD and IDD across multiple studies. VM represented about 37% of the total analyzed studies. Virtual reality (VR) (*n* = 4) (Burke et al., 2017; Hummet et al., 2014; Smith et al., 2014; Strickland et al., 2013) was the second most common video type technology utilized across the studies. VR represented about 21% of the total studies. Video feedback (*n* = 3) (Koegel et al., 2016; Mackey & Nelson, 2015; Rosales & Whitlow, 2016) was the third most common type of VT intervention utilized across studies. Video feedback represented about 16% of the total number of analyzed studies.

The least common VT interventions recorded across the analyzed studies were a blend of multi-video intervention designs. They included a combination of video modeling and video feedback (*n* = 2) (Kellems et al., 2020; Van Laarhoven et al., 2014) which accounted for about 11% of analyzed studies, and also video modeling and video prompting (*n* = 1) (Hayes et al., 2015) which accounted for about 5% of the total studies. Other additional least common solitary VT interventions reported included video prompt alone (*n* = 1) (Van Laarhoven, Carreon, et al., 2018), which accounted for 5% of the analyzed studies and mixed reality (*n* = 1) (Walker et al., 2016), accounted for about 5% of the total studies.

Dependent Variables/ Soft Skills

Researchers and practitioners targeted seven different soft skills (*N* =7) to increase the employment opportunities of individuals diagnosed with ASD and IDD using various VT interventions. The most common soft skills reported in the studies were job interview skills (*n* = 8) (Bahcali & Ozen, 2019; Burke et al., 2017; Hayes et al., 2015; Hummet et al., 2014; Rosales & Whitlow, 2016; Smith et al., 2014; Strickland et al., 2013; Walker et al., 2016), employment-related social skills (*n* = 5) (Kellems et al., 2020; Koegel et al., 2016; Park et al., 2020; Van Laarhoven et al., 2014; Walsh et al., 2018) and,

problem-solving skills (*n* = 3) (Morgan & Salzberg, 1992; Rausa et al., 2016; Yakubova & Zeleke, 2016). Some of the least common soft skills reported in the studies were decision-making skills (*n* = 2) (Mackey & Nelson, 2015; Van Laarhoven, Carreon, et al., 2018), customer service skills (*n* = 1) (Bross et al., 2019), requesting assistance (*n* =1) (Morgan & Salzberg, 1992) and telephone skills (*n* = 1) (Rausa et al., 2016).

Discussion

This study's purpose has been to establish what VT interventions researchers and practitioners have used to target soft skills for the employment of individuals with ASD and IDD. Also, to determine the type of soft skills targeted using VT. The first research question relating to the evidence of using VT interventions to teach soft skills for employment of individuals with ASD and IDD in published literature indicates that VT's use is ubiquitous and promising, as seen in 19 studies.

Quantitative analysis of data about the second question relating to common types of VT interventions used to support soft skills for employment of individuals with ASD and IDD reveals eight different VT interventions. VM is the most common type of VT intervention, followed by VR and video feedback, which is also common. The least common VT interventions for targeting soft skills for employment among individuals with ASD and IDD across the studies fall into two categories. The first category involves using single VT intervention like video prompts (i.e., video prompts alone) and mixed reality (i.e., mixed reality alone). The second category blends two VT types, including VM and video feedback and; VM and video prompting. Most of the video interventions were either combined with other interventions (e.g., explicit instruction, self-monitoring, prompting systems, interview, and or curriculum training packages) or applied as secondary intervention. A combination of interventions renders it challenging to establish VT intervention's absolute efficacy.

The third question relating to the type of soft skills commonly targeted for the employment of individuals with ASD and IDD using VT interventions reveals seven (*N* = 7) different soft skills. The most common soft skills reported are job interviewing skills, employment-related social skills, and problem-solving skills. The least common types of soft skills targeted are decision-making skills,

customer service skills, requesting assistance, and telephone skills. That interviewing skills are the most targeted soft skills indicates an effort to bridge the unemployment gap of individuals with disabilities compared to typical peers. This effort is commendable given the wide unemployment gap among individuals with ASD and IDD compared to peers (Shattuck et al., 2012). Consistent with Munandar et al. (2020), the elements of job interviewing skills targeted across studies include verbal and non-verbal behavior. It is evident that while using VT interventions for job interview skills acquisition is helpful, it might be more viable if used in combination with other evidence-based interventions. Some non-video interventions that researchers have successfully used with VT include behavior skills training (Rosales & Whitlow, 2016), explicit training (Burke et al., 2017), and curriculum-based packages (Rosales & Whitlow, 2016; Stictland et al., 2013; Walker et al., 2016).

An interesting finding in this review of literature is about soft skills as relates to telephone use. The teaching of telephone and social skills for employment using VT can lead to improved adaptive skills in other areas not targeted but are equally crucial for success in a job, as seen in the study by Rausa et al. (2016). The VM intervention resulted in improved responses to telephone calls. The findings of this study by Rausa et al. (2016) provide proof for the need to equip individuals with ASD and or IDD seeking competitive employment positions with soft skills as it will allow them to learn other necessary skills (hard skills). Telephone etiquette's teaching is even critical today, considering mobile phones' ubiquity and their sometimes-inappropriate use.

Lastly, only one study (Walker et al., 2016) report mixed reality as an intervention to target soft skills for employment. This outcome is not surprising, considering the cost of acquiring and using it may not be affordable. The use of mixed reality may also not align with individuals with ASD and IDD's strengths and characteristics, including sensory stimulation challenges. Although research specific to teaching individuals with ASD and IDD soft skills using VT is sparse, evidence suggests that these individuals can benefit from using VT interventions while working towards their transition goals, seeking and maintaining employment.

Conclusion

It appears that VT is an effective strategy for supporting individuals with a diagnosis of ASD and IDD to acquire and develop soft-skills necessary for obtaining and maintaining employment. However, there is a paucity of studies that target specific soft skills competencies for the employment of individuals with ASD and co-occurring IDD in real work environments. Researchers, practitioners, and employers should put a concerted effort to support soft skills acquisition amongst individuals with ASD and IDD because hard skills may lead to a lack of employment or employment termination if not accompanied by soft skills. Obtaining and maintaining employment because of adequate soft skills will contribute to enhanced quality of life, self-esteem, and independence of a growing population of adults with ASD and IDD graduating at high rates thanks to IDEA accountability measures.

Limitations

The inclusion and exclusion criteria narrowed the articles reviewed in this study to only those that used VT to target soft skills for employment, which may have led to the exclusion of several other studies that targeted soft skills acquisition amongst individuals with ASD and IDD using other feasible non-VT interventions. Also, there were no fidelity checks in place for this study in the form of inter-observer agreements (IOA), which is considered standard practice in systematic literature reviews. Additionally, some studies targeted both soft skills, life skills, and hard skills, as by Mackey and Nelson (2015), which renders it difficult to determine the VT intervention's real effect on the soft skill. Besides, some studies involved a combination of VT with other interventions like explicit instructions (Burke et al., 2017), behavior skills training (Rosales & Whitlow, 2016), and curriculum-based packages (Rosales & Whitlow, 2016; Stictland et al., 2013; Walker et al., 2016). The combination renders it challenging to determine which intervention was responsible for the recorded changes in targeted soft skills.

Implications for Future Research and Practice

This literature review adds to the knowledge about VT's use to improve employment skills amongst youth and adults with ASD, as reported in a recent systematic literature review by Munandar et al. (2020), except by targeting soft skills for employment. Also, the outcomes set the stage for researchers

and practitioners to be aware of how to utilize the research to practice gaps in the literature to equip individuals with ASD and IDD with the soft skills necessary to ensure their high transition rates into integrated employment settings.

References

References marked with an asterisk* indicate studies included in the literature review.

20 U.S.C. § 1416 (2016). https://sites.ed.gov/idea/files/policy_speced_guid_idea_bapr_2013_2013-b-relatedrequirements-12-10-12.pdf

Adolphs, R., Sears, L., & Piven, J. (2001). Abnormal processing of social information from faces in autism. *Journal of Cognitive Neuroscience, 13*(2), 232–240. https://doi.org/10.1162/089892901564289

Agran, M., Hughes, C., Thoma, C. A., & Scott, L. A. (2016). Employment social skills: What skills are really valued? *Career Development and Transition for Exceptional Individuals, 39*(2), 111–120. https://doi.org/10.1177%2F2165143414546741

Americans With Disabilities Act of 1990, 42 U.S.C. § 12101 *et seq*. (1990). https://www.ada.gov/pubs/adastatute08.htm

Assistive Technology Act of 2004, Pub. L. No. 108-364, 118 Stat. 1707 (2004). https://www.govinfo.gov/content/pkg/PLAW-108publ364/pdf/PLAW-108publ364.pdf

*Bahcali, T., & Ozen, A. (2019). Effectiveness of video modeling presented by tablet pc on teaching job interview skills to individuals with developmental disabilities. *Education and Training in Autism and Developmental Disabilities, 54*(3), 249–262. http://www.daddcec.com/uploads/2/5/2/0/2520220/etadd_september_54_3_2019.pdf#page=40

Baldwin, S., Costley, D., & Warren, A. (2014). Employment activities and experiences of adults with high-functioning autism and Asperger's disorder. *Journal of Autism and Developmental Disorders, 44*(10), 2440–2449. https://link.springer.com/article/10.1007/s10803-014-2112-z

Blustein, D. L. (2008). The role of work in psychological health and well-being: A conceptual, historical, and public policy perspective. *American Psychologist, 63*(4), 228–240. https://doi.org/10.1037/0003-066X.63.4.228

*Bross, L. A., Travers, J. C., Munandar, V. D., & Morningstar, M. (2019). Video modeling to improve customer service skills of an employed young adult with autism. *Focus on Autism and Other*

Developmental Disabilities, 34(4), 226–235. https://journals.sagepub.com/doi/pdf/10.1177/1088357618805990

Buescher, A. V., Cidav, Z., Knapp, M., & Mandell, D. S. (2014). Costs of autism spectrum disorders in the United Kingdom and the United States. *JAMA Pediatrics, 168*(8), 721–728. https://jamanetwork.com/journals/jamapediatrics/fullarticle/1879723

*Burke, S. L., Bresnahan, T., Li, T., Epnere, K., Rizzo, A., Partin, M., Ahlness, R. M., & Trimmer, M. (2018). Using Virtual interactive Training Agents (ViTA) with adults with autism and other developmental disabilities. *Journal of Autism and Developmental Disorders, 48*(3), 905–912. https://doi.org/10.1007/s10803-017-3374-z

Castelli, F. (2005). Understanding emotions from standardized facial expressions in autism and normal development. *Autism, 9*(4), 428–449. https://doi.org/10.1177%2F1362361305056082

Cimatti, B. (2016). Definition, development, assessment of soft skills and their role for the quality of organizations and enterprises. *International Journal for Quality Research, 10*(1). http://ijqr.net/paper.php?id=529

Clark, K. A., Konrad, M., & Test, D. W. (2019). Teaching soft skills to students with disabilities with upgrade your performance. *Education and Training in Autism and Developmental Disabilities*, *54*(1), 41–56. https://d1wqtxts1xzle7.cloudfront.net/60116480/Teaching_Soft_Skills_to_Studen20190725-121096-1tylf7m.pdf?1564085960=&response-content-disposition=inline%3B+filename%3DTeaching_Soft_Skills_to_Students_with_Di.pdf&Expires=1602693498&Signature=OBzEvoJQ08mFN9CYtTvNl8m5FCjcDFMVmlVTvrVHoCuD7l8AvzHSV8U~oTJVibAK-Sr8I22nGY~7rKIf1HV9tMOobCfRcStgAOJpBBqobP4PaKmjme2cxIwbdZdP6EFTxgdftnjYSD158nN6awdvEwpzFTFWzuPUykGNFIcrvvHuCfa-96UEVN3br9bXfgY5kLFAwiL4fOWCEanNFKXiMrv3gWcJCAdOs-fmXrGqgPbC~Tqy4Bp9XjbxEKqiEgSiaIVZARJhAEG3KpBlWsVMywdRjZvydvU8QFNrbuMg

BlQ2ns4ETSUId20B2S6qguBw-P-JJbFhK2aoGq7K25B-0w__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Fombonne, E., Du Mazaubrun, C., Cans, C., & Grandjean, H. (1997). Autism and associated medical disorders in a French epidemiological survey. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(11), 1561–1569. https://doi.org/10.1016/S0890-8567(09)66566-7

Gillberg, C. (1999). Autism and its spectrum disorders. In N. Bouras (Ed.), *Psychiatric and behavioural disorders in developmental disabilities and mental retardation* (pp. 73–95). Cambridge University Press. https://books.google.com/books?id=bnP8WE95UO0C&lpg=PA73&ots=-XvdquwE5a&lr&pg=PA73#v=onepage&q&f=false

*Hayes, G. R., Custodio, V. E., Haimson, O. L., Nguyen, K., Ringland, K. E., Ulgado, R. R., Waterhousec, A., & Weiner, R. (2015). Mobile video modeling for employment interviews for individuals with autism. *Journal of Vocational Rehabilitation, 43*(3), 275–287. https://psycnet.apa.org/doi/10.3233/JVR-150775

Hendricks, D. (2010). Employment and adults with autism spectrum disorders: Challenges and strategies for success. *Journal of Vocational Rehabilitation, 32*(2), 125–134. https://doi.org/10.3233/JVR-2010-0502.

Hendricks, D., & Wehman, P. (2009). Transition from school to adulthood for youth with autism spectrum disorders: Review and recommendations. *Focus on Autism and Other Developmental Disabilities, 24*(2), 77–88. https://doi.org/10.1177/1088357608329827.

Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry, 45*(2), 212–229. https://doi.org/10.1111/j.1469-7610.2004.00215.x

*Hummet, L. B., Olsen, D., Be, M., Fleming, M., & Smith, M. (2014). Simulated job interview improves skills for adults with serious mental illnesses. *Annual Review of Cyber Therapy and Telemedicine, 12*, 50–54. http://www.ncbi.nlm.nih.gov/pmc/articles/pmc4887097/

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 stat. 20 U.S.C. § 1400-1482 *et seq*. (2004). https://ies.ed.gov/ncser/pdf/pl108-446.pdf

Jahoda, A., Banks, P., Dagnan, D., Kemp, J., Kerr, W., & Williams, V. (2009). Starting a new job: The social and emotional experience of people with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, *22*(5), 421–425. https://doi.org/10.1111/j.1468-3148.2009.00497.x

*Kellems, R. O., Osborne, K., Rowe, D., Gabrielsen, T., Hansen, B., Sabey, C., Fraziera, B., Simonsa, K., Jensena, M., Zarua, M., & Clive, M. (2020). Teaching conversation skills to adults with developmental disabilities using a video-based intervention package. *Journal of Vocational Rehabilitation, 53*(1), 119–130. https://content-iospress-com.authenticate.library.duq.edu/download/journal-of-vocational-rehabilitation/jvr201090?id=journal-of-vocational-rehabilitation%2Fjvr201090

Knapp, M., Romeo, R., & Beecham, J. (2009). Economic cost of autism in the UK. *Autism*, *13*(3), 317–336. https://doi.org/10.1177%2F1362361309104246

*Koegel, L. K., Navab, A., Ashbaugh, K., & Koegel, R. L. (2016). Using reframing to reduce negative statements in social conversation for adults with autism spectrum disorder. *Journal of Positive Behavior Interventions*, *18*(3), 133–144. http://dx.doi.org/10.1177/1098300715596136

Krieger, B., Kinebanian, A., Prodinger, B., & Heigl, F. (2012). Becoming a member of the work force: Perceptions of adults with Asperger Syndrome. *Work*, *43*(2), 141–157. https://doi.org/10.3233/wor-2012-1392

Lecavalier, L., Snow, A. V., & Norris, M. (2011). Autism spectrum disorders and intellectual disability. In M. L. Johnny & S. Peter (Eds.), *International handbook of autism and pervasive developmental disorders* (pp. 37–51). Springer. https://doi.org/10.1007/978-1-4419-8065-6_4

Lee, G. K., & Carter, E. W. (2012). Preparing transition-age students with high-functioning autism spectrum disorders for meaningful work. *Psychology in the Schools*, *49*(10), 988–1000. https://doi.org/10.1002/pits.21651

Leung, R. C., & Zakzanis, K. K. (2014). Brief report: cognitive flexibility in autism spectrum disorders: a quantitative review. *Journal of Autism and Developmental Disorders*, *44*(10), 2628–2645. https://doi.org/10.1007/s10803-014-2136-4

Lindsay, S., Adams, T., Sanford, R., McDougall, C., Kingsnorth, S., & Menna-Dack, D. (2014). Employers' and employment counselors' perceptions of desirable skills for entry-level positions for adolescents: How does it differ for youth with disabilities*?*. *Disability and Society*, *29*(6), 953–967. https://doi.org/10.1080/09687599.2013.874330.

*Mackey, M., & Nelson, G. (2015). Twins with autism: utilising video feedback to improve job-related behaviours. *British Journal of Special Education, 42*(4), 390–410. https://doi.org/10.1111/1467-8578.12107

Maddox, B. B., & White, S. W. (2015). Comorbid social anxiety disorder in adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 45*(12), 3949–3960. https://doi.org/10.1007/s10803-015-2531-5

Marriage, S., Wolverton, A., & Marriage, K. (2009). Autism spectrum disorder grown up: A chart review of adult functioning. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *18*(4), 322. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2765385/

*Morgan, R. L., & Salzberg, C. L. (1992). Effects of video-assisted training on employment-related social skills of adults with severe mental retardation. *Journal of Applied Behavior Analysis, 25*(2), 365–383. https://doi.org/10.1901/jaba.1992.25-365

Müller, E., Schuler, A., Burton, B. A., & Yates, G. B. (2003). Meeting the vocational support needs of individuals with Asperger syndrome and other autism spectrum disabilities. *Journal of Vocational Rehabilitation, 18*(3), 163–175. https://content.iospress.com/articles/journal-of-vocational-rehabilitation/jvr00193

Munandar, V., Morningstar, M. E., & Carlson, S. R. (2020). A systematic literature review of video-based interventions to improve integrated competitive employment skills among youth and adults with

autism spectrum disorder. *Journal of Vocational Rehabilitation, 53(1),* 29–4. https://doi.org/10.3233/JVR-201083

*Park, J., Bouck, E. C., & Duenas, A. (2020). Using video modeling to teach social skills for employment to youth with intellectual disability. *Career Development and Transition for Exceptional Individuals, 43*(1), 40–52. https://doi.org/10.1177%2F2165143418810671

Pauw, K., Bhorat, H., Goga, S., Mncube, L., Oosthuizen, M., & van der Westhuizen, C. (2006). Graduate unemployment in the context of skills shortages, education and training: Findings from a firm survey. *Education and Training: Findings from a Firm Survey (November 2006). DPRU Working Paper*, (06/115). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=961353

*Rausa, V. C., Moore, D. W., & Anderson, A. (2016). Use of video modelling to teach complex and meaningful job skills to an adult with autism spectrum disorder. *Developmental Neurorehabilitation, 19*(4), 267–274. https://doi.org/10.3109/17518423.2015.1008150

Reed, F. D. D., Hyman, S. R., & Hirst, J. M. (2011). Applications of technology to teach social skills to children with autism. *Research in Autism Spectrum Disorders*, *5*(3), 1003–1010. https://doi.org/10.1016/j.rasd.2011.01.022

Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*, *75*(4), 453–465. https://doi.org/10.1177%2F1080569912460400

*Rosales, R., & Whitlow, H. (2019). A component analysis of job interview training for young adults with autism spectrum disorder. *Behavioral Interventions, 34*(2), 147–162. https://doi.org/10.1002/bin.1658

Scott, M., Jacob, A., Hendrie, D., Parsons, R., Girdler, S., Falkmer, T., & Falkmer, M. (2017). Employer's perception of the costs and the benefits of hiring individuals with autism spectrum disorder in open employment in Australia. *PLoS One, 12*(5), e0177607. https://doi.org/10.1371/journal.pone.0177607

Section 504 of the Rehabilitation Act of 1973, Pub. L. No. 93-112, 87 Stat. 394 (1973). https://www.govinfo.gov/content/pkg/USCODE-2010-title29/pdf/USCODE-2010-title29-chap4-sec31.pdf

Shattuck, P. T., Narendorf, S. C., Cooper, B., Sterzing, P. R., Wagner, M., & Taylor, J. L. (2012). Postsecondary education and employment among youth with an autism spectrum disorder. *Pediatrics, 129*(6), 1042–1049. https://doi.org/10.1542/peds.2011-2864

* Smith, M. J., Ginger, E., Wright, K., Wright, M. A, Taylor, J. L, Humm, L. B., Olsen, D. E., Bell, M. D., & Fleming, M. F. (2014). Virtual reality job interview training in adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 44*(10), 2450–2463. https://doi.org/10.1007/s10803-014-2113-y

Soft Skills. (n.d). *In Collins English Dictionary*. https://www.collinsdictionary.com/us/dictionary/english/soft-skills

*Strickland, D., Coles, C., & Southern, L. (2013). JobTIPS: A transition to employment program for individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 43*(10), 2472–2483. https://doi.org/10.1007/s10803-013-1800-4

Taylor, J. L., Henninger, N. A., & Mailick, M. R. (2015). Longitudinal patterns of employment and postsecondary education for adults with autism and average-range IQ. *Autism, 19*(7), 785–793. https://doi.org/10.1177%2F1362361315585643

*Van Laarhoven, T., Carreon, A., Bonneau, W., & Lagerhausen, A. (2018). Comparing mobile technologies for teaching vocational skills to individuals with autism spectrum disorders and/or intellectual disabilities using universally-designed prompting systems. *Journal of Autism and Developmental Disorders, 48*(7), 2516–2529. http://dx.doi.org/10.1007/s10803-018-3512-2

*Van Laarhoven, T., Kos, D., Pehlke, K., Johnson, J. W., & Burgin, X. (2014). Comparison of video modeling and video feedback to increase employment-related social skills of learners with developmental disabilities. *DADD Online Journal, 1*(1), 69–90. https://d1wqtxts1xzle7.cloudfront.net/35972372/DADD_Online_Journal_V1_2014.pdf?1418757

109=&response-content-disposition=inline%3B+filename%3DUsing_a_Photographic_Electronic_Activity.pdf&Expires=1601779873&Signature=EmRV6k~CMMaQUrZVi1WItFQlHfRnmmpr1YERiH8xtiItZOG3E2oM6ReNgDCKUjTZb-dUUj1HhB3Bn4W7DDokXn7v7L7Em~Yn1monVDqO21ZZNfNOX6cNIlYeSv3ak-SDrMVEY8QHzlIGaCvU~8bv6ualYe94q7Nb0K0yEPjg4b~BH19GzhlU7L-3CXPNm8iORh1hRG91~2PV~Hzpd~bucXJC6NwYn10iJhAwCS4VH-WHy0ZhHoCSezbrFsAG62FV0LgYzyBpDuMAYnaz99cB3AgvUHyOL1Ne0L2H1W5Jj7wRxpURClOcI~yciesfv-Sjy9pJOt2IyoWM6WlgR1SeWw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA#page=69

*Walker, Z., Vasquez, E., & Wienke, W. (2016). The impact of simulated interviews for individuals with intellectual disability. *Journal of Educational Technology and Society, 19*(1), 76–88. https://repository.nie.edu.sg/bitstream/10497/17643/1/ETS-19-1-76.pdf

*Walsh, E., Holloway, J., & Lydon, H. (2018). An evaluation of a social skills intervention for adults with autism spectrum disorder and intellectual disabilities preparing for employment in Ireland: A Pilot Study. *Journal of Autism and Developmental Disorders, 48*(5), 1727–1741. http://dx.doi.org/10.1007/s10803-017-3441-5

*Yakubova, G., & Zeleke, W. A. (2016). A problem-solving intervention using ipads to improve transition-related task performance of students with autism spectrum disorder. *Journal of Special Education Technology, 31*(2), 77–86. http://dx.doi.org/10.1177/0162643416650023

Yamamoto, G. T., & Karaman, F. (2011). Education 2.0. *On the Horizon, 19*(2), 109–117. https://doi.org/10.1108/10748121111138308