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ORIGINAL ARTICLE

Identifying critical employability skills for employment success of autistic individuals: A content analysis of job postings

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Abstract

This study aimed to examine the literature on the skill sets of autistic individuals and determine how these skills align with current and projected future labour market needs. Based on a literature review, researchers identified the following skill categories common to autistic individuals: visual skills, attention to detail and systemizing composite skills. Researchers then gathered aggregated data on occupations and industries from over 90 state and federal sources in the United States. Next, they collected data on the most in-demand jobs, their industries and relevant skills by analysing hundreds of millions of online job postings. The results indicate the most viable occupations aligned with each skill category. There is minimal available research using labour market data to generate special education goals and transition plans for autistic students. By providing educators and practitioners with critical information regarding viable employment pathways, all stakeholders can more effectively and equitably prepare autistic individuals for the 21st-century workforce.

KEYWORDS
autism, employability skills, special education, transition planning

Key points

- Organizations that assess the skills of applicants with disabilities and prioritize person-job fit report more productive work habits and job performance that exceed employer expectations. While literature supports strategies to promote job attainment, individuals with disabilities continue to obtain and sustain employment at significantly lower rates than nondisabled peers.
- Autistic individuals often possess skills that qualify them for a variety of jobs across industries. Research suggests that many autistic people excel in tasks that require strong visual perception and acuity, attentional focus on visual tasks and attention to detail.
- Educators can integrate the skills identified and available labour market data to assist autistic students in obtaining employment. Using current labour market data, in conjunction with the marketable skills and interests of autistic students, can lead to more effective, data-based decision-making in transition planning for students with special education supports.
- Successfully obtaining and sustaining meaningful employment benefits autistic employees and organizations that prioritize diversifying their workforce and

fostering inclusive environments. Educators, in collaboration with local employers, can promote a better understanding of the skill sets of neurodivergent individuals, allowing hiring entities to recruit autistic employees more strategically.

INTRODUCTION

Aligning the skills that people with disabilities possess with viable job opportunities can lead to positive outcomes for employees and employers (Chan, Strauser, Maher, et al., 2010; Dutta et al., 2008). Studies have found that organizations that appropriately assess the skills of applicants with disabilities and prioritize person-job fit for those applicants also report more productive work habits and job performance that exceed employer expectations (Ali et al., 2011). While literature supports strategies to promote job attainment, such as job-skill-alignment, individuals with disabilities continue to obtain and sustain employment at significantly lower rates than nondisabled peers. According to the Bureau of Labor Market Statistics (BLMS; 2023), 21.3 per cent of individuals with disabilities were employed in 2022, which is significantly lower than the 65.4 per cent of individuals without disabilities who reported employment that year. While disability-specific employment rates are not currently available, research continues to demonstrate vocational needs among autistic youth. Based on a nationally representative sample (n=452), 53.4% of respondents aged 21–25 reported ever having held a paying job after finishing high school (Roux et al., 2013). Autistic youth also report finding a job on their own at lower rates than transition-aged youth in other disability categories (Wei et al., 2018). These data indicate that there is room for significant improvements in the way stakeholders and service providers support individuals with disabilities, particularly autistic youth, as they transition to life after high school.

The purpose of this study is to identify the skill sets of autistic individuals and determine how they align with current and projected future labour market needs. With this information, autistic individuals and supporting stakeholders (e.g., special educators) can more effectively prepare for and pursue attainable, sustaining postsecondary employment opportunities. The authors would like to note that rather than using person-first language (i.e., a person with autism), they are utilizing the descriptor 'autistic', as emerging international research indicates that autistic adults prefer identity-first language (Taboas et al., 2023).

Fuelled by technological advancement, various factors have transformed the workplace and workers' career trajectories, dramatically changing the skill requirements of many occupations demanded by employers. This accelerated change highlights the increasing importance of person-job fit (i.e., the match between an individual's skills and the skills required to perform a job successfully) and continuous skill development. Technological progress has also impacted the importance of defensible skills, which are skills related to work activities that machines cannot achieve (e.g., interpersonal skills, problem-solving and innovation; World Economic Forum, 2020). Understanding today's rapidly changing labour market is essential when preparing autistic individuals entering the workforce. One way stakeholders can ensure sufficient preparation for and access to viable employment opportunities is to examine existing literature on the traits of autistic individuals and identify potential matches with the predicted in-demand skills in the labour market.

Autistic individuals often possess skills that qualify them for a variety of jobs across industries. Research suggests that many autistic people excel in tasks that require strong visual perception and acuity, attentional focus on visual tasks and attention to detail. Autistic employees have demonstrated the capacity to excel in jobs that require these skills (Walsh et al., 2014; Wehman et al., 2014). Not only does alignment exist between skill-sets common to autistic students and key skills within science, technology, engineering and math (STEM) industries, but current research indicates that autistic students often report higher rates of interest in STEM fields than other demographic groups. Wei et al. (2013) found that autistic individuals reported higher rates of interest in technological systems, including multimedia, video and gaming, computers and electronics, systematizing and STEM-discipline education. The authors also noted that autistic students major in STEM fields at higher rates than students with other disabilities, as well as the general student population (Wei et al., 2013).

While researchers investigating opportunities for employees in STEM fields have examined hiring individuals with disabilities, specifically autistic individuals (Bonaccio et al., 2019; Chan, Strauser, Gervey, & Lee, 2010; Hernandez et al., 2000; Ju et al., 2012), there is little research on the effectiveness of these recruitment strategies and how educators can supplement these efforts in the K-12 education of autistic students. Educators often possess a detailed knowledge of their students' aptitudes and how students can maximize their skills to succeed in various jobs. However, what remains unknown is how educators can use job market data to inform pedagogical approaches when working with students with disabilities, specifically autistic individuals. Research on these issues may benefit autistic students, K-12 and college and university educators, and organizations seeking to meet their labour demand by employing autistic individuals.

Estimates of labour supply and demand from the United States (U.S.) Bureau of Labor Statistics (BLS)

suggest an increasing need for a STEM-centric future workforce (Noonan, 2017; Rios et al., 2020) and a decreasing labour supply of workers with the skill sets required by these jobs. High school and college educators, preparing students to enter the labour force, must understand the desired skills employers articulate in their job postings (Margot & Kettler, 2019). Not only do job postings often predict the desired characteristics of the future workforce (Rios et al., 2020), but they also may provide a roadmap that outlines the technical, cognitive, interpersonal and intrapersonal skill sets that employers are seeking and that educators need to develop in their students (Burrus et al., 2013).

Rios et al. (2020) highlight the advantages of using job postings to identify the most in-demand skills in the marketplace. These researchers assessed 142,000 job advertisements, determining the most frequently sought-after skills listed by employers, which included collaboration, oral and written communication and problem-solving. In the article, the authors further suggest that by focusing on the development of these skills, stakeholders can more strategically prepare adolescents for the workforce. This type of data-driven, skill-based vocational training represents the possible uses of labour market data in the school-based setting in supporting all learners in accessing work, including those who traditionally face difficulty obtaining employment. For example, educators may use job postings to identify specific jobs that require the skills that research indicates autistic individuals are likely to possess, which can better prepare them to gain viable employment opportunities. While existing literature provides information regarding sought-after skillsets in the modern workplace, there is limited research available on employment opportunities that align with the skillsets of autistic students. The results of this study address this gap by aligning projected labour market needs to the skillsets of autistic individuals, revealing possible employment opportunities for students with disabilities and supporting effective transition planning.

Skill sets associated with autistic individuals

Previous research suggests that many autistic individuals possess skills that organizations highly value. Although each autistic individual has unique strengths, many studies indicate trends in how neurodivergent individuals may perceive and understand the world. To better understand these trends, investigators conducted a systematic review of the literature, identifying research studies that document skill sets associated with autistic people. Researchers utilized four academic databases (EBSCOhost, ProQuest, PsycINFO, and PubMed) to select articles published from 2009 to 2019. They also used several non-academic online sources (Google Scholar, Google searches leading to Autism organizations, etc.) to identify the potential skills of autistic individuals further. After conducting a thorough systematic review (Griffiths et al., in press), the following skills emerged: visual skills, attention to detail, deliberative and logical decision-making, technology affinity and STEM interest, and systemizing and understanding systems. Previous research studies define these skills in the following manner.

Visual skills include both visual acuity, meaning increased visual perception and discrimination abilities (O'Riordan & Plaisted, 2001) and greater attentional focus on visual tasks (Kaldy et al., 2016). *Attention to detail* means a greater focus on details that others may only sometimes notice (Ashwin et al., 2017). *Deliberative and logical decision-making* refers to a tendency to be more thorough and logically consistent when making decisions (Brosnan et al., 2014). *Technology affinity and STEM interest* is an interest in STEM both in leisure activities (Mazurek et al., 2012) and professional work (Wei et al., 2013). *Systemizing and understanding systems* is the drive to analyse or construct a system by understanding the rules or patterns of the system (Baron-Cohen et al., 2003). Previous research has found much overlap between the cognitive skills of deliberative and logical decision-making, technology affinity and STEM interest and systemizing and understanding systems across similar occupations. Therefore, the term *systemizing composite* represents these three similar skills.

Visual skills

Visual acuity is one of the most frequently cited strengths in the autism community. Autistic individuals tend to be more successful at visual search tasks when compared to neurotypical participants. These tasks typically record the amount of time it takes for someone to find a target object among distractor items, or they may ask the participant whether the target object is present at all (Kaldy et al., 2011; O'Riordan, 2004). Researchers have observed strong visual acuity strengths in various ages, including toddlers (Kaldy et al., 2011) and adults (O'Riordan, 2004).

Autistic individuals have consistently performed well on visual acuity tests, partly due to an increased ability to focus. This skill includes far vision, near vision, perceptual speed, visual colour discrimination and visualization. Some have hypothesized that enhanced discrimination in autistic persons allows for more efficient visual search (Kaldy et al., 2011; Kemner et al., 2008; O'Riordan & Plaisted, 2001). Researchers analysing eye movements found that autistic participants made fewer eye movements, indicating that they are not using a different strategy but have enhanced visual discrimination ability (Kaldy et al., 2011; Kemner et al., 2008).

Autistic individuals also tend to execute the embedded figures test (EFT) faster when compared to other groups. The EFT involves finding a specific

shape inside a larger complex design. While the groups achieved equal accuracy, autistic participants had shorter response times (Jolliffe & Baron-Cohen, 1997). One study similarly identified superior EFT performance among autistic participants by assessing visual acuity using the Frieburg Visual Acuity and Contrast Test (FrACT) and systemizing ability using the Intuitive Physics Test (Brosnan et al., 2012). Autistic participants showed higher performance on the EFT and on the measures of visual acuity and systemizing than the control groups (Brosnan et al., 2012). Other studies have also found higher visual acuity in autistic individuals using the FrACT. In one publication involving 44 participants, researchers found that autistic males had a visual acuity of 20:7, meaning they could see a level of accuracy and detail from 20 feet away. In comparison, a neurotypical person demonstrated the ability to see a level of accuracy and detail from 7 feet away (Ashwin et al., 2009).

Additional research has found that autistic adults are better at visuospatial learning tasks compared to their neurotypical counterparts (Roser et al., 2015). In one study, autistic adults answered more items correctly on a visual statistical learning task of shape-pair associations than neurotypical individuals (Roser et al., 2015). In one recent study comparing the perceptual capacity of neurotypical and autistic children, researchers found that both groups could recall an auditory story and relevant visual information displayed in the background during the story (Remington et al., 2019). However, autistic children recalled more information than neurotypical peers when the content of the visual display was unrelated to the story while still being able to recall central information from the story (Remington et al., 2019).

Some researchers have put forward the Enhanced Perceptual Functioning Model to explain perception in autism (Mottron et al., 2006; Samson et al., 2012). This model describes locally oriented visual and auditory perception, enhanced discrimination and enhanced perception of static stimuli; it looks at brain activity in regions associated with visual perception as a possible explanation (Mottron et al., 2006). Using Activation Likelihood Estimation (ALE) meta-analysis of neuroimaging during visual tasks, research indicates autistic individuals have higher activity in posterior regions and lower activity in the frontal cortex, consistent with stronger engagement of visual processing regions (Samson et al., 2012).

Attention to detail

Attention to detail is another skill associated with autistic individuals. Studies show that they consistently outperform neurotypical individuals on multiple detail-oriented tests. Investigators have also studied attention to detail through change blindness, a phenomenon where people do not see changes to a visual scene if there is an interruption between the scenes (Ashwin et al., 2017). Several studies have found that autistic individuals have reduced change blindness, although the literature is less consistent and reflects a variety of methodologies (Ashwin et al., 2017; Smith & Milne, 2009). In one study, autistic adults could more quickly detect changes to items of marginal interest (Ashwin et al., 2017), which implies a focus on details others do not typically possess. Another study using continuity errors within short clips found that autistic adolescents detected more continuity errors than the control group. Both groups found more errors in the scene's central rather than marginal aspects (Smith & Milne, 2009). These studies suggest that autistic people have a different attentional style, resulting in greater attention to detail.

One review of over 50 research studies found that autistic people do better on tasks that require detail-focused processing, such as the EFT, Wechsler Block Design and motion coherence threshold tasks (Happe & Frith, 2006). They used this evidence to describe the cognitive style of autistic individuals as detail-focused and biased towards local rather than global processing. Similarly, in one qualitative study involving 291 interviewees, the most frequently reported strength of autistic individuals was attention to detail. The autistic group ($n=136$) also reported this strength at a significantly higher per cent than the neurotypical control group ($n=155$) (Lorenz & Heinitz, 2014).

Relatedly, recent studies indicate that autistic people often demonstrate enhanced perceptual abilities compared to non-autistic participants. In one study, Remington and Fairnie (2017) found that when compared to neurotypical participants, autistic individuals were better able to execute auditory tasks, sustaining results even as the auditory load increased. When researchers integrated an unexpected distraction into the task, autistic participants reported noticing the distraction at higher rates (47%) than neurotypical participants (22%) while maintaining superior detection of stimuli as the auditory load increased. These results indicate that autistic individuals frequently display enhanced auditory perceptual capacity, suggesting they perform better on auditory processing tasks. Researchers confirmed these results in a later study, also reporting that higher auditory perceptual abilities correlated with increased sensory sensitivity (Brinkert & Remington, 2020).

Systematizing composite

The current study uses the phrase systematizing composite to refer to a combination of three skills: deliberative and logical decision-making, technology affinity and STEM interest and systemizing and understanding

systems. Systemizing involves analysing or building a system based on identifying input–output rules and is essential for STEM fields such as engineering, math and biology (Baron-Cohen et al., 2007). The Empathizing-Systemizing (E-S) Theory suggests that autistic individuals possess superior systemizing skills (Baron-Cohen, 2009). This theory links with other skills and argues that strong attention to detail allows for pattern and rule detection in systemizable domains (Baron-Cohen, 2009). Specifically, sensory hypersensitivity in autism, such as the enhanced perceptual functioning model, leads to attention to detail in pattern recognition, which results in systemizing ability (Baron-Cohen, 2009).

Some studies have identified a preference for systemizable domains in autistic individuals. One recent publication that examined special interests in autistic participants and neurotypical controls found more intense interests among autistic participants in systemizable domains such as machines and technology, sciences, sorting, categorizing and organizing (Caldwell-Harris & Jordan, 2014). Another study found that although autistic individuals reported interest in social sciences and creative fields almost as frequently as STEM fields, they often engaged in systemizing rather than creative aspects within these fields (Kirchner & Dziobeck, 2014).

The relationship between skills and educational level

To more effectively utilize labour market data through the lens of specific skillsets, stakeholders must also understand the relationship between these skillsets and the education level required from job applicants. The BLS (2018) 'measures labour market activity, working conditions, price changes, and productivity in the U.S. economy to support public and private decision-making'. It is essential to consider that the BLS breaks educational level into five categories, called zones, when discussing skills. Each zone represents the educational attainment required for various jobs, where 1=no GED necessary, 2=GED necessary, 3=some post-high school education necessary, such as associate degrees or certifications, 4=bachelor's degree necessary and 5=post bachelor's degree necessary. Due to the expected confound between educational level and specific skill sets, investigators felt it more appropriate to divide educational level by the attainment or nonattainment of a bachelor's degree for two of the skill sets identified in the literature review and previous research. According to the BLS, education is a defining labour market characteristic that is particularly relevant for the visual and systemizing composite skill sets. This was less of an issue with the attention to detail skill set. Thus, five final skill categories are considered: attention to detail, visual skills requiring less than a bachelor's degree, visual skills requiring more than a bachelor's degree, systematizing composite requiring less than a bachelor's degree and systematizing composite requiring more than a bachelor's degree. The intersection of skill set and educational level may influence the occupations that draw on these skills. This has important implications for achieving person-job fit, particularly for autistic individuals.

METHODS

Data

The researcher team aggregated data from over 90 different state and federal sources to gather information on occupations and industries. Sources included, but were not limited to, the U.S. BLS, the State of California, Integrated Postsecondary Education Data Systems (IPEDS), U.S. Census, American Community Survey (ACS) and the Department of Labor's O*NET. These databases provide information on industry, occupation, demographics, educational programs, and attainment projections. However, government-collected data sources have yet to be able to keep pace with the rate of change in rapidly transforming occupations such as cybersecurity, the Internet of Things, and blockchain. Therefore, the research team also utilized proprietary data sources and analytic tools, including from real-time labour market information providers such as Emsi and Burning Glass. Using real-time data analyses allows users to identify the most current job skills and certifications required by these occupations.

The study used job postings and online worker resumes or profiles from two proprietary databases in 2019 to gather information on job postings. The job posting data include hundreds of millions of online job postings that contain company, job title, skills, keywords and other related data. The worker resume/profile database aggregates resumes and professional profiles on the open web. This source includes more than 108 million unique workers in the U.S. (and over 400 million globally) posted on CareerBuilder, Indeed, GitHub, Facebook, Twitter, Toggle, Bēhance, Dribbble and other online sources. These profiles provide granular data on the skills, certifications, education, job titles, place of residence and employers for nearly every occupation in North America. This information, combined with job posting data, allows for an understanding of the types of skills companies are looking for, the types of workers in advanced technology fields, and these workers' career progression through the labour force. An analysis of job postings provides data on the most in-demand jobs and their industries, as well as hard and soft skills. Hard skills are defined as technical knowledge and training for specific job duties. Soft skills are defined as non-technical skills for job success. These include interpersonal skills, communication skills and work habits.

ANALYSES AND RESULTS

Investigators mapped the five identified skill categories onto a crosswalk with the BLS' O*NET data dimensions of ability, knowledge, skill, work activity and work style to find the number of jobs requiring these skills. Using the crosswalk, researchers used each skill as input to determine occupations that were the closest match. These occupations met the criteria of 'best fit' because they all required applicants to possess one or more of the following skills: visual skills (91 occupations), attention to detail (35 occupations) and systemizing composite (725 occupations). Investigators further analysed the identified occupations based on dynamic labour market information aggregated in real-time from online job boards, job postings and census data. Table 1 presents the number of jobs in the U.S. in 2019 for each of the five identified skill categories used in the study. It also includes the estimated 5-year growth rate, average hourly earnings and average defensibility, which is the likelihood that a job will continue to provide employment and is not vulnerable to automation. A score of zero indicates a vulnerable and at-risk occupation. Table 2 presents the top 10 occupations most often listed in job postings for each of the five skill categories. Table 2 also includes the number of jobs, 5-year growth rate and hourly pay rate for each occupation. Table 3 presents each skill category's most in-demand hard and soft skills. Each skill is colour-coded by the number of job categories that require it, with darker colours representing an increased demand rate. This highlights the overlap of hard and soft skills across jobs.

Researchers examined the relationships between the skill categories and the most frequently represented industries in job postings in the U.S. Results revealed that for attention to detail occupations, the most frequently represented industries were administrative and support (42.8% of postings), health care and social assistance (24.9%), professional, scientific and technical services (9.3%), manufacturing (3.5%) and finance and insurance (3.1%).

For visual skills, the most frequently represented industries within these job postings were administrative and support (26.8% of postings), health care and social assistance (12.1%), construction (11.7%), manufacturing (10.1%), and professional, scientific and technical services (9.8%). For systemizing composite, the most frequently represented industries were professional, scientific and technical services (23.3% of postings), manufacturing (17.6%), administrative and support (17.4%), retail trade (6.8%) and construction (6.3%).

DISCUSSION

Practitioners and researchers can utilize this analysis in many ways to further support the educational and occupational aspirations of autistic individuals. Educators and stakeholders can integrate the skills identified and associated labour market data from the present study to assist autistic students in pinpointing potential employment opportunities. Including current labour market data, in conjunction with close consideration of the marketable skills and interests of autistic students, can potentially lead to more effective, data-based decision-making in transition planning for students with individualized education plans (IEPs).

Autistic individuals tend to have unique skill sets that will likely grow in demand with increased automation and other technological changes. Raising employer awareness of these skills, and giving employers the tools to leverage them, helps ensure 'occupational fit', which improves overall productivity and increases career opportunities for autistic individuals. In recent years, employers in both the public and private sectors have continued to seek ways to cultivate a more diverse workforce. One way to create a more inclusive workplace is through modifying recruitment, hiring and retention processes to better support autistic individuals. Results of the present study suggest that autistic jobseekers represent an untapped talent pool who, upon hiring, could meet the demands of the current labour market, often aligning with STEM-centric industries (Noonan, 2017; Rios et al., 2020).

The data used in this report breaks down the 'occupational DNA' of existing and emerging professions to determine which occupations fit best with the potential skill sets of autistic individuals. The study found that

TABLE 1 Labour market data for the United States.

Skill category	2019 jobs	Estimated 5 year growth rate (%)	Average defensibility	Average hourly earning ($)
Visual skills, less than a bachelor's	7,306,986	5.24	0.526	25.55
Visual skills, bachelor's or greater	2,370,629	5.38	0.932	56.09
Attention to detail	8,307,965	7.21	0.885	38.42
Systemizing composite, Less than a bachelor's	4,367,920	4.74	0.601	28.97
Systemizing composite, bachelor's or greater	5,938,728	5.97	0.937	45.55

TABLE 2 Top 10 occupations by skill category.

Category	Top 10 occupations	Number of jobs	Pay rate per hour[a]	Five-year growth[b]
Visual skills, less than a bachelor's degree	Maintenance and repair workers, general	1,574,247	$19.64	0.7%
	Electricians	759,912	$27.36	8.7%
	First-line supervisors of construction trades and extraction workers	728,260	$32.61	12.3%
	Heating, air conditioning, and refrigeration mechanics and installers	376,947	$24.32	17.2%
	Firefighters	329,254	$25.24	−3.6%
	Compliance officers	312,780	$34.18	19.7%
	Emergency medical technicians and paramedics	268,576	$17.62	5.0%
	Telecommunications equipment installers and repairers, except line installers	241,091	$29.55	−18.6%
	Printing press operators	176,968	$18.21	−9.6%
	Mobile heavy equipment mechanics, except engines	165,565	$26.61	16.9%
Visual skills, bachelor's or greater	Construction managers	439,715	$46.72	14.2%
	Physicians and surgeons, all other	434,283	$100.00	12.0%
	Engineers, all other	167,825	$49.70	22.7%
	Producers and directors	144,083	$36.73	−1.5%
	Electronics engineers, except computer	141,326	$51.70	−6.9%
	Architects, except landscape and naval	133,870	$39.58	2.3%
	Airline pilots, co-pilots and flight engineers	127,962	$77.39	−4.7%
	Engineering technicians, except drafters, all other	89,952	$32.48	−13.6%
	Chemists	87,231	$38.13	−1.9%
	Aerospace engineers	71,492	$57.02	−11.8%
Attention to detail	Registered nurses	3,034,248	$36.22	3.1%
	Accountants and auditors	1,440,918	$35.37	1.9%
	First-line supervisors of mechanics, installers and repairers	500,301	$33.77	3.2%
	Physicians and surgeons, all other	434,283	$100.00	12.0%
	Compliance officers	312,780	$34.18	19.7%
	Training and development specialists	307,279	$30.14	17.0%
	Emergency medical technicians and paramedics	268,576	$17.62	5.0%
	Logisticians	259,171	$36.67	42.2%
	Nurse practitioners	189,477	$53.69	46.6%
	Engineers, all other	167,825	$49.70	22.7%
Systematizing composite, less than a bachelor's	Automotive service technicians and mechanics	779,276	$21.18	−3.9%
	First-line supervisors of construction trades and extraction workers	728,260	$32.61	12.3%
	First-line supervisors of mechanics, installers and repairers	500,301	$33.77	3.2%
	Heating, air conditioning, and refrigeration mechanics and installers	376,947	$ 24.32	17.2%
	Compliance officers	312,780	$34.18	19.7%
	Industrial production managers	187,760	$52.30	7.0%
	Computer-controlled machine tool operators, metal and plastic	153,349	$20.32	0.6%
	Electrical and electronics engineering technicians	134,118	$32.48	−13.6%
	Audio and video equipment technicians	102,900	$23.04	−14.6%
	Architectural and civil drafters	102,713	$27.64	0.3%

(Continues)

TABLE 2 (Continued)

Category	Top 10 occupations	Number of jobs	Pay rate per hour[a]	Five-year growth[b]
Systemizing composite, bachelor's or greater	Business operations specialists, all other	1,121,521	$37.22	48.6%
	Construction managers	439,715	$46.72	14.2%
	Computer occupations, all other	429,872	$44.65	11.0%
	Computer and information systems managers	414,212	$72.67	29.4%
	Civil engineers	330,920	$42.58	5.2%
	Mechanical engineers	316,395	$43.35	3.4%
	Compliance officers	312,780	$34.18	19.7%
	Industrial engineers	289,855	$42.76	15.0%
	Logisticians	259,171	$36.67	42.2%
	Architectural and engineering managers	195,546	$71.89	9.4%

[a]Data provided by Emsi – Median hourly earnings (2020).
[b]Data provided by Emsi – Job growth measured between 2016 and 2021.

many employers prioritize skills related to visual acuity, attention to detail and systemizing composite. Literature outlining autistic individuals' propensities for visual discrimination and acuity, increased attentional focus on visual tasks, deliberative and logical decision-making, affinity for technology, STEM interest and systemizing serve as evidence to support our suggested approach in using these findings to inform education and workforce development in the school setting. Employers, future employees and stakeholders assisting students in transition planning (e.g., family members, secondary educators, vocational specialists, school counsellors and school psychologists) must consistently analyse evolving and emerging occupations to identify potential career opportunities.

Research indicates that students with disabilities, including autistic students, experience more difficulty attaining and sustaining employment after high school (BLS, 2023). School-based practitioners can align the specialized skill sets of autistic individuals to the needs of their local labour market. They can integrate this information into transition planning, which may increase the likelihood of students seeking jobs that suit their capabilities, strengths and interests. Overall, the overlap of preferred skills and qualifications across related and unrelated industries demonstrates the high potential for matches between job openings and potential autistic employees. In particular, the most highly ranked skills illustrate the potential for aspiring employees with autism to fulfil jobs in STEM-related positions as the identified strengths closely align with the range of opportunities in STEM fields.

By considering occupational fit for the student and the employer, autistic individuals may be more likely to access sustainable jobs in which they can experience success and satisfaction. Integrating labour market data into transition planning also ensures that students are preparing for viable vocational pathways that can withstand the potential impact of automation. While transition planning often includes identifying careers of interest, educators must also consider the anticipated evolution of a student's chosen career to ensure they will have access to opportunities now and in years to come. Additional research into autism-related skills may reveal more potential occupational fits, especially as new technologies create new occupations. Researchers and practitioners should also consider that while the literature does indicate skill alignment between some autistic employees and STEM careers, a thorough exploration of an individual's interests and professional goals is imperative. Understanding an individual's skills and interests in all potential fields and considering roles that include employability skills (e.g., communication and critical thinking) and technical skills is essential in formulating an individualized and relevant transition plan. While current research provides helpful context, school-based professionals should exercise caution so as not to perpetuate stereotypes and, in turn, limit a student's occupational opportunities.

Additionally, an examination of the soft skills that employers seek most, including communications, management and leadership, emphasizes the discrepancies between the skills employers desire and the professional strengths of autistic people. Understanding the importance of soft skills allows for purposeful transition planning by school-based professionals supporting autistic adolescents and young adults. With this information, IEP team members can develop goals that address the gaps in the employability skill sets of autistic students. Students can then receive targeted support, progress monitoring, and continued intervention to bolster social, emotional, and behavioural competencies essential in today's workforce. This data also allows educators to consider the educational level of various employment pathways that may suit the skill-sets of autistic students, which can help students and their families plan accordingly for higher education that certain careers may require. Future employers and human resource departments are also positioned

TABLE 3 In demand hard and soft skills by skill categories.

	Visual skills		Attention to detail	Systemizing	
	Less than a bachelor's	More than a bachelor's	All degree types	Less than a bachelor's	More than a bachelor's
Soft skills					
Communications	22%	20%	17%	27%	37%
Valid driver's licence	21%			24%	
Troubleshooting (problem-solving)	19%			16%	
Operations	15%				
Management	14%	17%	15%	22%	32%
Customer service	14%			16%	
Construction		13%			
Leadership		12%	10%	13%	26%
Operations		10%		19%	19%
Detail oriented				11%	
Problem solving				10%	17%
Innovation					14%
Presentations					13%
Co-ordinating					11%
Written communication					11%
Research					11%
Integration					11%
Hard skills					
HVAC	16%			14%	
Plumbing	12%				
Mechanics	9%			13%	
Painting	9%				
Preventative maintenance	8%			5%	
Surgeries		8%			
Construction management		8%			
Hospital medicine		8%			
Subcontracting		7%			
Paediatrics		7%			
Nursing			28%		
Basic life support			22%		
Advanced cardiovascular life support			16%		
Intensive care unit			12%		
Accounting			10%		
Auditing				6%	
Quality control				6%	
Project management					12%
Agile software development					11%
Automation					9%
Computer science					8%
New product development					8%

to continue employability skills training and development for autistic employees. Future research should explore how the changing labour market landscape will impact employment outcomes for autistic individuals and their specific skills.

This study contributes to the existing gap in research centering on the work experiences and career outcomes of autistic individuals. More specifically, these findings advance educators' and employers' ability to support job and career aspirants who have been historically underserved by focusing on the skills employers are searching for and positions they are seeking to fill and simultaneously aligning this data with the abilities and talents of potential employees. As one of the few comparisons of labour market demands and talents of autistic individuals, this research contributes essential insights into special education and post-secondary planning.

Limitations

The limitations of this study include the scope of the data analysed, the search parameters used, and the geographic specificity of localized analysis. While the data analysed had a comprehensive range of job listing websites, it was a partial data pool. Accordingly, the data and subsequent analyses may be limited due to economic constraints, job demand fluctuations and the coronavirus pandemic's impact.

Due to the nature of the research, the search parameters employed may have impacted the criteria used to identify and analyse job skill types and the strengths of autistic individuals. For example, including jobs based on education level may have resulted in the exclusion of jobs that needed to articulate the attainment of a specific degree. Finally, readers should note that the data included in this research were limited to the U.S. labour market.

Implications

Data from this study provide opportunities for practical application and further research in several areas. First, there is meaningful potential to use these findings in transition planning for students preparing to enter the workforce. The results help determine which skill sets or individual strengths align with workforce needs. Likewise, the findings will help students and advising stakeholders decide which industries are more likely to hire and which jobs are less vulnerable to automation. Once team members identify a viable career pathway, educators can support students in bolstering relevant strengths while addressing any gaps in their existing skill sets to better prepare them for the careers they plan to pursue. Ultimately, this purposeful skill-building benefits students and employers as it trains autistic youth for work and further develops the talent pipeline for related industries. This information also allows school-based professionals to partner with local industries more strategically to facilitate work-based learning experiences. With direct experience in relevant workplace environments, students can practice applying their skill sets, build professional relationships and grow accustomed to interpersonal encounters common to most jobs. Research has long highlighted the importance of alignment between autistic employees' skills and job responsibilities as a paramount determinant of professional and personal success (Hendricks, 2010; Mawhood & Howlin, 1999; Scott et al., 2019). Educators play a pivotal role in ensuring this alignment and assisting students in identifying appropriate careers.

Successfully obtaining and sustaining meaningful employment benefits autistic employees and public and private institutions that prioritize the diversification of their workforce and strive to foster more inclusive environments. With this information, educators, in collaboration with local employers, can promote a better understanding of the strengths and skill sets of neurodivergent individuals, which, in turn, allows hiring entities to recruit autistic employees more strategically. Future researchers should consider investigating how employers can further develop more inclusive practices and attitudes to effectively support and retain autistic employees, positively contributing to both short- and long-term outcomes for individuals and industries. Considerations such as these lead to more culturally sustaining transition planning and, potentially, more diverse and inclusive work environments.

In sum, this research confirms the influence of educators' pedagogical practices on students' overall success during the transition into the workforce. Literature outlining how autistic individuals are supported and prepared for their short-term and long-term professional trajectories highlights the importance of educators in securing access to job opportunities. Educators can apply their understanding of student skill sets in visual, attention-oriented and systemizing areas as they assist students in planning for jobs and careers after graduation. Future research should prioritize furthering these efforts by investigating how stakeholders, including students, families, educators and industry partners, can effectively incorporate labour market data to prepare and recruit autistic individuals.

CONCLUSION

The U.S. labour market depends significantly on the ability and perspectives of employees with diverse skills. As future employees, students with neurodivergent skills and perspectives are essential in the labour market. This investigation of identifying the skills of autistic individuals and the market-based needs of industries offers an

understanding of how the two sectors can inform each other in valuable and practical ways. Future research should focus on understanding how educators and employers can align their efforts to provide equitable access to training and jobs for autistic individuals. The current study demonstrates the enormous potential that exists for educator–employer collaboration and more effectively assisting autistic students in planning for the future.

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The authors have declared no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings is available from lightcast at https://lightcast.io/.

ETHICS STATEMENT

This article does not contain any studies involving human participants performed by any of the authors.

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