

Perspectives of employers about hiring individuals with autism spectrum disorder: Evaluating a cohort of employers engaged in a job-readiness initiative

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Abstract.

BACKGROUND: Personal and organizational benefits are incurred when individuals with autism spectrum disorder (ASD) are employed. However, employment rates among adults with ASD remain unacceptably low. It appears that inclusive employment requires greater community and employer awareness, and a range of strategies and actions that foster employment opportunity. There is limited research addressing employer experiences and perspectives relative to hiring, supporting and supervising persons with ASD. Further knowledge is needed to better understand employer perspectives, and guide employer capacity for engaging and supporting individuals with ASD in the workplace.

OBJECTIVE: This paper explores the experiences and perspectives of employers who engaged with individuals with ASD in a workplace sampling opportunity. In doing so, results aim to ascertain strategies and barriers to nurturing greater engagement of individuals with ASD in employment.

METHODS: Based on secondary review of program evaluation data, survey administration and qualitative interview data were analyzed. Findings identified perspectives of employers who had engaged with youth and young adults with ASD in employment settings. Specifically, the sample was drawn from employers who participated in a 12-week employment preparedness program for youth and young adults with ASD and employers.

RESULTS: Findings highlight factors that foster and impede employer engagement and support for youth and young adults with ASD relative to inclusive employment. Employer participation in this job readiness initiative nurtured knowledge gain and pro-inclusion attitudinal shifts and intention to hire individuals with ASD, based on relationship formation and knowledge gain. Employers reported numerous positive experiences and benefits from working with individuals on the autism spectrum. Benefits included workplace productivity, greater recognition of the contributions of individuals with ASD, and improved quality of work which in turn was viewed to improve employer amenity for inclusive hiring. Yet, continued reticence to employ was noted as an ongoing barrier to widespread inclusive hiring of individuals with ASD.

CONCLUSION: Generally, employer capacity building and engagement with individuals with ASD appear to have a positive influence on employer intention to inclusively hire. Overall, employers gained awareness about the competence of individuals with ASD in employment settings. Implications include guidance for engaging employers in capacity building in the aim of greater employment opportunity for youth and young adults with ASD.

Keywords: Autism spectrum disorder, employment, employers, job readiness, inclusive hiring

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1. Introduction

Employment rates for individuals with autism spectrum disorder (ASD) remain low. In Canada, Zwicker, Zaresani, and Emery (2017) found the employment rate for individuals with ASD over 15 years of age was 14.3%. In their key role of potentially offering employment opportunity, employers remain insufficiently understood in terms of how they contribute or impose barriers to employment. This paper examines perspectives and roles of employers in advancing or hindering employment opportunity for individuals with ASD. Implications inform steps forward in building employer capacity and employee opportunity to access employment.

2. Background: Potential barriers to employment for individuals with ASD

There is limited literature that addresses the perspectives and actions of employers relative to inclusive hiring. Ameri and colleagues (2015) explored employment opportunities for people with ASD relative to peers. They submitted fictitious applications to advertised accounting positions from well-qualified applicants; one-third of the “applicants” disclosed a spinal cord injury, one-third disclosed Asperger’s Syndrome, and the rest did not disclose a disability. Of these applicants, individuals who self-reported a disability received 26% fewer expressions of employer interest than those who did not report a disability, with no significant differences reported across disabilities. These findings suggest disablism relative to hiring practices directed to individuals with disabilities including ASD.

To redress such barriers, various supports to employers were found to be helpful, as noted in a study examining 35 employers of individuals with Asperger’s Syndrome or high-functioning ASD (Scott, Falkmer, Girdler & Falkmer, 2015). Organizational representatives utilizing a supported employment resource rated this resource as important (Nesbitt, 2000). Hagner and Cooney (2005) offered the following accommodations implemented by supervisors of employees with ASD: consistent scheduling and duties, manageable and predictable social demands, support with organization, and limiting unstructured time. Supervisors reportedly supported employees with ASD by ensuring direct and specific instruction, verifying that instructions were understood, providing assistance with transi-

tions, supporting awareness of social rules and cues, and engaging co-workers in supporting social interactions and work-related tasks (Hagner & Cooney 2005). External support services were noted as helpful, but tended to eventually transition to internal support once members of the employment team (including the employee) became familiar with one another (Hagner & Cooney, 2005). Notwithstanding this weaning of external support, ongoing liaison was noted to be helpful as issues arose (Hagner & Cooney, 2005).

Hagner & Cooney (2005) found that supervisors identified beneficial work outcomes as a result of employing individuals with ASD. Outcomes were linked to employee punctuality, dependability and conscientiousness. In a 2-year supported employment study involving 30 employees with high-functioning ASD, several employers reported positive experiences, and they were willing to hire more than one individual with ASD (Mawhood & Howlin, 1999).

3. Employer considerations beyond ASD

Due to the current dearth of literature that specifically examines employers’ perspectives specifically related to ASD, the broader literature addressing employer experience across disabilities has been selectively addressed. In a qualitative study by Irvine and Lupart (2008), employers described the following challenges associated with some employees with developmental disabilities: potential resistance to change, social skills deficits, physical impairments and limitations, and difficulties performing the breadth of work tasks. In a survey of *experienced* versus *inexperienced* employers that addressed hiring workers with disabilities, the most frequently identified concerns among both groups were: safety risks, quality control risks, reduced productivity, and behavior-related issues (Morgan & Alexander, 2005). In a literature review of 15 studies published between 1999 and 2012, Ju and colleagues (2013) identified similar employer concerns related to safety, productivity, attendance, punctuality, appearance, social skills, and employment-related skills. In addition, the cost of providing accommodations was found to be of concern to employers (Erickson, von Schrader, Bruyere, & VanLooy, 2014; Houtenville & Kalargyrou, 2012; McFarlin, Song, & Sonntag, 1991); however, most accommodations were found to be inexpensive (Ju et al., 2013).

Employers' concerns may vary across industries. For instance, employers in hospitality-related organizations identified concerns that relative to non-disabled workers, persons with disabilities may have more safety issues, bring less work-related experience and skills, and be less productive (Houtenville & Kalargyrou, 2012). Supervisors were noted to experience discomfort relative to the potential need for employee discipline and the evaluation of employees with disabilities, and to have concerns about customer attitudes towards people with disabilities (Houtenville & Kalargyrou, 2012, 2015). Co-workers' attitudes were considered more challenging in manufacturing and transportation/warehousing industries (Houtenville & Kalargyrou, 2015). Compared to leisure and hospitality sectors, employers in goods-producing industries more often reported concerns about the performance of workers with disabilities (Houtenville & Kalargyrou, 2015).

Reviews of studies on employer attitudes towards workers with disabilities suggested that employers with positive employment experiences relative to employing workers with disabilities, tend to hold more favorable views about inclusive hiring (Hernandez, Keys, & Balcazar 2000; Ju, Roberts, & Zhang, 2013; Unger, 2002). Employers who hire and/or supervise adults with disabilities identify numerous benefits resulting from employing this population. For instance, in a survey of 534 employers with and without experience hiring individuals with developmental disabilities, employers who had hired employees with disabilities described this population as effective within the employment setting (Morgan & Alexander, 2005). The most frequently identified advantages of employing individuals with developmental disabilities were: regular attendance, long-term tenure, and meaningful co-worker relationships that in turn supported the employee with a disability (Morgan & Alexander, 2005).

Irvine and Lupart (2008) identified benefits of greater work efficiency, a more enjoyable work atmosphere, positive role models, and awareness and education related to disabilities. Employers appeared to be more confident when they had assistance from disability/employment service personnel to assist with difficult situations, periods of transition, and job trials (Scott et al., 2015). Employers who were themselves familiar with working with individuals with disabilities, revealed greater willingness to inclusively hire and, in turn, tended to promote flexibility and respectful communication in the workplace (Lindstrom, Hirano, McCarthy, & Alverson, 2014;

Unger, 2002). Further, educating employers about the advantages of hiring workers with disabilities was noted to potentially facilitate increased inclusiveness by dispelling negative myths (Houtenville & Kalargyrou, 2012). Proactive policies were reported to positively affect hiring practices, including incentivizing tax credits for businesses (Houtenville & Kalargyrou, 2012) and equal opportunity policies utilizing employment supports (Nesbitt, 2000).

4. The need for this study

A recent study by members of this team identified the salience of elements of the broader "employment ecosystem" in fostering employment access for youth and adults with ASD (Nicholas, Mitchell, Dudley, Zulla, & Clarke, 2018). A key component of that ecosystem was reported to be engaged employers/supervisors who recognize the potential for, and value of, employing people with ASD (Nicholas et al., 2018). To further understand the role of employers and employer engagement relative to fostering employment opportunities for youth and adults with ASD, the current study examined employer perspectives, roles, and facilitative and prohibitive practices related to inclusive hiring, based on a sample of employers who participated in a job readiness program for youth and young adults with ASD. Further understanding about employer perspectives and actions are important in identifying employer-related factors that contribute to or impede employment access for individuals with ASD.

4.1. Background of the program from which employers were recruited

Employers recruited to the study engaged in the *EmploymentWorks* Canada (EWC) program (Nicholas, Clarke, & Mitchell, 2015) by offering short term employment exposure opportunities to youth and young adults with ASD. This 12-week program, offered at regional sites across Canada and funded in part by the Government of Canada's Opportunities Fund for Persons with Disabilities Program, provided job readiness programming for people with ASD ages 15–29 years. Participants engaged in both structured learning and onsite work experience. The program helped individuals with ASD to determine and work toward employment goals, and presented an array of topics including health and finan-

cial literacy, communication and social engagement, employment-related functioning, and self-esteem. During the onsite experiences, employers learned about ASD and the potential employment needs of individuals with ASD, hence building employer capacity while providing participants with ASD the opportunity to sample different work experiences. For the employer, this experience sought to encourage strategy development and relationship-building with adults with ASD who desired employment. For participants with ASD, workplace experiences offered an expanded repertoire of worksite exposure and roles, and ultimately refined areas of 'job fit'.

5. Methods

A mixed methods approach, drawing on a convergent parallel design (Creswell, 2014; Greene, Caracelli, & Graham, 1989), was used whereby experiences, practices and perspectives of employers were elicited using both qualitative and quantitative data collection methods. Employer attitudes and practices were elicited through the administration of the ASD Awareness Questionnaire (AAQ) prior to participation in the program. The AAQ, a 45-item questionnaire adapted from the Northern Ireland Life and Times Survey (2012), includes questions exploring knowledge and attitudes about ASD. A post-program survey, entitled 'EWC Post-Program Survey' (EWPS) was also administered; it consisted of 25 items that appraised employers' experiences and roles in, and the perceived impacts from, engaging with individuals with ASD in the EWC program. Items explored employers' likelihood to hire an individual with ASD, the extent to which program supports were perceived to impact employer or organizational practices, and any perceived changes needed in the workplace.

In addition to these two questionnaires, telephone-based qualitative interviews were conducted with a randomly selected subsample of employers (across a range of settings and sectors) who offered job sampling experiences to youth and adults with ASD. A semi-structured interview schedule with open ended questions invited employers to reflect on their experiences, perspectives related to hiring practices, and degree of comfort with adapting work environments and processes. Interviews were digitally recorded, transcribed verbatim and analyzed using NVivo 11 qualitative data management and analysis software (QSR International, 2018). An inductive approach

Table 1
Employers/Employees

	AAQ (n = 79)	QI (n = 11)
Gender		
Female: Male	49:30	7:4
Industry Sector	Demographic Form (n = 87) %	QI (n = 11) %
Leisure & Hospitality	24.2	27.3
Trades	9.2	
Retail	27.6	27.3
Education, Health & Wellness	19.5	27.3
Manufacturing	5.7	9.05
Arts & Entertainment	13.8	9.05

was undertaken to analyze data whereby transcripts were coded and categorized, and emergent codes were grouped into themes using a constant comparative approach (Patton, 2000). Secondary analysis of anonymized qualitative and quantitative data collected during and after the program was conducted, and institutional review board approval was received.

6. The sample

6.1. ASD awareness questionnaire (AAQ)

The AAQ was completed by 82 employers and organizational employees from a range of industry/employment sectors. Employer demographic information is presented in Table 1, including representation from employers in regionally-diverse provinces across Canada. In some cases, respondents did not answer a question and thus different sample sizes are reported; however in all cases, a percentage is offered. A greater number of females ($n = 49$, 62%), compared to males ($n = 30$, 38%), completed the AAQ, and the majority of respondents was between 25 and 44 years of age ($n = 52$, 63%).

6.2. EWC post-program survey (EWPS)

The EWPS was completed by 29 employers, drawn from a range of industry sectors, although not all questions were answered by every employer, which resulted in missing data. Items related to hiring practices, experience with the program, and workplace adaptations are presented. Demographic information beyond the region of participants was not obtained, and it was not possible to link the responses from specific employers between the AAQ and EWPS.

6.3. Qualitative interview (QI)

Semi-structured qualitative interviews were conducted with a subsample of 11 employers one week to one month after program completion. Employers represented a range of industries (see Table 1).

7. Results

7.1. AAQ results

Table 2 presents the responses from questions on the AAQ related to employers' experiences and training in ASD. Thirty-three of the 81 individuals (40.7%) identified a family member with ASD and/or knew someone else with ASD. The vast majority (90.1%) had received no training in ASD over the past 2 years. Among this sample ($n=80$), 11 (13.75%) indicated that their organization did not have inclusive hiring strategies, 34 (42.5%) were unsure if inclusive hiring strategies existed in their organization, and 35 (43.75%) reported that their organizations had inclusive hiring strategies. Twenty-seven of the 35 respondents answered a follow up question that probed whether or not the organization's inclusive hiring practices were specific to ASD. Of those, only 7 (25.9%) had specific strategies related to ASD, with the majority (74.1%) indicating that hiring strategies were not specific to, or focused on, individuals with ASD. These findings indicate gaps in both intentionality to hire individuals with ASD, and hiring practices supporting inclusive hiring. Further, there was a lack of focus on ways to support and effectively engage people with ASD in the workplace. Without such intentionality, there is concern that employment opportunity for access and sustainability may be impeded.

Differences were noted in participants' knowledge about ASD (Table 3). Over a third of the respondents were unaware of genetic or environmental risk factors associated with ASD, and a similar proportion of respondents were uninformed that vaccines do not cause autism. More encouraging, a high percentage of respondents (92.5%) realized that ASD is indeed not caused by poor parenting. Overall, findings suggest limited understanding about ASD, which likely translates to little knowledge about the needs of individuals with ASD in the workplace.

To further ascertain knowledge about ASD, employers were asked to rate the accuracy (true, false, not sure) of 10 ASD-related statements (Table 4).

Table 2
AAQ: Experience and Training in ASD ($n=81$)

	Yes %	No %	Unsure %
Is someone in your family and/or someone else you know personally diagnosed with ASD?	40.7	59.3	0.0
Have you had any ASD training in the past 2 years?	9.9	90.1	0.0
To your knowledge, does your organization have inclusive hiring strategies to employ people with disabilities? ^a	43.75	13.75	42.5
If your organization has inclusive hiring strategies, are these strategies specific to ASD? ^b	25.9	74.1	0.0

^a80 respondents answered this question; ^b27 respondents answered this question.

Table 3
AAQ: Cause of ASD ($n=80$)

	Agree %	Neutral %	Disagree %	Don't Know %
ASD is caused by vaccines.	3.8	11.3	50.0	35.0
ASD is caused by something in the environment.	13.8	13.8	33.8	41.3
ASD can be inherited.	38.0	10.1	8.8	43.0
ASD is caused by poor parenting skills.	0.0	1.3	92.5	6.3

Positively, 96.3% of the respondents recognized that individuals with ASD desire friends, 74.1% of respondents recognized that individuals with ASD can live independently, 70.4% indicated that not all individuals with ASD have poor eye contact, and almost half recognized that not all people with ASD have behaviour challenges. Of note though, the greatest amount of uncertainty (55.6%) was in relation to whether individuals with ASD desired to be employed. It seems important to note that the least amount of awareness related to ASD was in the area most related to the focus of respondents' role i.e., employment and individuals with ASD, thus highlighting substantial gaps in awareness.

The AAQ asked respondents to indicate their awareness level (very aware = 4; moderately aware = 3; slightly aware = 2 and not aware = 1) regarding ASD. A two-way ANOVA yielded a main effect for sex ($F [1, 72] = 5.73, p < .05$); accordingly, female employers ($M = 2.49, SD = 0.62$) were significantly more aware of ASD than males ($M = 2.09, SD = 0.88$). A main effect for interaction

Table 4
AAQ: Statements related to ASD ($n = 81$)

	True %	False %	Not sure %
ASD is an emotional disorder.	21.0	40.7	38.3
All individuals with ASD want to work.	18.5	25.9	55.6
Vaccines are the most likely cause of ASD. ^a	1.3	65.0	33.8
All people with ASD have behaviour challenges.	25.9	49.4	24.7
ASD does not have a cure.	59.3	7.4	33.3
People with ASD do not want friends.	0.0	96.3	3.7
All people with ASD display poor eye contact.	1.2	70.4	28.4
ASD is more common in females than males.	1.2	53.1	45.7
Young adults with ASD can live independently.	74.1	6.2	19.8
People with ASD commonly have one extraordinary gift/ability. ^a	37.5	23.8	38.8

^a80 respondents answered this question.

with individuals with ASD ($F [1, 72] = 6.02, p < .05$) was found, with those who knew someone in or outside their family with ASD ($M = 2.50, SD = 0.70$) having significantly more awareness about ASD than those who did not ($M = 2.08, SD = 0.80$). The interaction effect was not significant.

In potentially adapting the work environment, participants were asked to identify what they perceived as challenges (major, minor or none) to hiring an individual with ASD within their organization (Table 5). Between 8.8 and 22.9% of respondents indicated that the following would impose significant challenges: potential difficulty for the individual with ASD to complete required tasks or be productive, not knowing if the manager/organization would have the knowledge or capability to accommodate the individual's special needs, risk of an insurance claim or litigation, negative attitudes, and safety concerns. These considerations invite guidance to employers in building greater understanding and means to support work opportunity.

While negative attitudes or unfamiliarity with individuals with ASD were not seen as significant challenges by most individuals, nearly all respondents (85.7%) believed to some extent that the ability of an employee with ASD to do their required work would present a challenge, and a substantial proportion of respondents indicated at least minor concerns related to productivity (71.5%), accommodation of special needs (68.6%), and safety risk (61.8%). Overall, employers indicated perceived challenges in most areas, thus indicating limiting perspectives that may render them less likely to engage and readily employ an individual with ASD.

The question outlined in Table 6 was only answered by those who indicated that they were in a managerial position ($n = 36$). Prior to participating in the EWC program, more than half (52.8%) of the

Table 5
Perceived challenges adapting the work environment ($n = 35$)

	Significant (%)	Minor (%)	None Perceived (%)
Productivity concerns	22.9	48.6	28.6
Safety concerns ^a	20.6	41.2	38.2
Having the knowledge or capabilities to accommodate the special needs	20.0	48.6	31.4
Ability for an individual with ASD to do the work needed	14.3	71.4	14.3
Insurance-related incident ^a	11.8	44.1	44.1
Fear of litigation ^a	11.8	29.4	58.8
Awareness and attitudes of customers	11.4	42.9	45.7
Awareness and attitudes of staff ^a	8.8	32.4	58.8
Cost associated with the accommodation of disabilities ^a	5.9	44.1	50.0
Discomfort or unfamiliarity	2.9	60.0	37.1
Attitudes of supervisors – skills and capabilities of supervisor with people with disabilities ^a	2.9	32.4	64.7

^a34 respondents answered this question.

participants were neutral regarding their level of confidence to interview and hire an individual with ASD, with 16.7% indicating that they were slightly to very hesitant to inclusively interview and hire.

Managers were asked about their level of comfort adapting aspects of their organizational environment to the needs of an individual with ASD (Table 7). The majority of managers indicated being comfortable adapting the workplace, and stated that they would (i) offer ASD awareness training to staff (85.7%), (ii) train supervisors to advance intra-organizational knowledge about ASD in the workplace (82.9%), (iii) implement volunteer or internship trials (80.0%),

Table 6
AAQ: Confidence with interviewing and hiring ($n = 36$)

	Very - Slightly Hesitant %	Neutral %	Slightly – Very Confident %
How confident do you feel with the knowledge you have about ASD to consider interviewing and potentially hiring someone with ASD?	16.7	52.8	30.6

(iv) accept short-term onsite job coaches (77.1%), (v) have modified interview policies (74.3%), (vi) adapt work scheduling (74.3%), (vii) increase training for new roles (68.6%), and (viii) integrate assistive technology (54.5%). Overall, managers tended to be willing to interview individuals with ASD, and the majority of managers were comfortable making a variety of adaptations to the work environment in order to facilitate employment.

When asked about offering an internship/extended job sampling opportunity for individuals with ASD, the majority of participants identified no significant challenges across surveyed domains (Table 8). However, 50% identified concerns regarding health and safety, and almost 45% reported concerns about the intern's ability to be productive during the internship and potential costs associated with an internship. Over 40% of managers had concerns about potential insurance-related incidents, their ability to accommodate the range of special needs, and the potential that customers may lack awareness about, or hold negative attitudes toward, people with ASD. These results suggest mixed findings relative to employers' inclusivity in hiring, and suggest substantial levels of concern and hesitance. Concerns and inconsistencies relative to employer perspectives about inclusive employment seemingly heighten the likelihood that employers may default to more exclusionary practices that limit access to jobs for individuals with ASD.

7.2. EWPS results

Eighty-eight percent ($n = 17$) of employers indicated that the EWC program enhanced their likelihood of hiring an individual with ASD, potentially suggesting that education and relationship-development opportunities may have a bearing

on employer attitudes related to intent to hire. All employers ($n = 29$) either 'agreed' or 'strongly agreed' that the supports received rendered the program successful, and they all indicated that their engagement with individuals with ASD had been a positive experience.

Regarding the need for accommodations in the workplace, 14 employers (51.9%) did not implement any adaptations to the work environment when working with individuals with ASD in EWC. Minor adaptations were implemented at 8 (29.6%) sites. Minor adaptations were defined as accommodations that did not disrupt normal business activities or impose cost, and were aligned with normal procedures for hiring a new employee. Relatively few employers ($n = 5$, 18.5%) had to implement major adaptations. Major adaptations were defined as any adaptation that disrupted normal business, incurred a cost greater than normal operation, or required additional staff support. Of the adaptations noted by these employers, two were related to increased staffing, one required decreasing normal operations, and one entailed accommodation for additional physical challenges. Overall, the majority of employers surveyed implemented either no or minimal adaptations.

When asked what they appreciated most about their experience of engaging with individuals with ASD in the EWC program, employers noted the following domains of benefit: (i) participant-related (e.g., "being able to help autistic young people with work experience"), (ii) employer/organization-related (e.g., "our team learned a lot..." or "how happy the workers were"), and (iii) employment support/job coach-related (e.g., "the (EWC) organizers are great, very personable..." or "The overall concept (was appreciated) – helping people grow to their best and become more independent and fulfilled").

8. Qualitative interview results

Several themes emerged following qualitative analysis of interviews with employers: (1) engagement with individuals with ASD as a means of increasing understanding and confidence to hire an individual with ASD, (2) the need to tailor jobs and implement accommodations, (3) employee and employer growth as a result of working together, (4) organizational/workplace advancement as a result of inclusive hiring, and (5) barriers to inclusive employment. Each of these themes are outlined below, along with illustrative excerpts from interviews.

Table 7
AAQ: Comfort adapting workplace for individuals with ASD (n = 35)

	Comfortable %	Comfortable with Exception ^a %	Uncomfortable %	Don't Know %
Having an ASD awareness training on working with people with ASD	85.7	11.4	0.0	2.9
Specific training of supervisors including difference in supervising someone with ASD	82.9	11.4	0.0	5.7
Volunteer or internship trial with potential candidate	80.0	17.1	2.9	0.0
Short-term onsite job coaching	77.1	11.4	2.9	8.6
Modified interview policies	74.3	17.1	0.0	8.6
A modified work schedule	74.3	11.4	11.4	2.9
More involved training for new roles	68.6	11.4	2.9	17.1
Integrating the use of assistive technology in the workplace ^b	54.5	12.1	3.0	30.3

^aComfortable if individual with ASD does not present with additional intellectual or communicative challenges. ^b33 respondents completed this question.

Table 8
Challenges perceived related to internship/job sampling (n = 30)

	Significant %	Minor %	None Perceived %
Health and safety concerns	16.7	33.3	50.0
Insurance-related incident ^a	10.7	32.1	57.1
Inconvenience and impact on regular business duties ^b	10.3	27.6	62.1
Costs associated with work-related support.	10.0	33.3	56.7
Customer awareness and attitudes toward people with ASD	10.0	33.3	56.7
Fear of litigation	10.0	23.3	66.7
Ability for productive work to be done in a 10–12 week time period	6.9	37.9	55.2
Attitudes and experience of supervisors ^b	6.9	17.2	75.9
Accommodating any special needs	6.7	36.7	56.7
Current work culture to support working with someone with ASD.	3.3	26.7	70.0

^a28 respondents answered this question; ^b29 respondents answered this question.

8.1. Increasing understanding and confidence

Employers stated that their involvement with individuals with ASD at their work sites increased their understanding and confidence about the employment-related skills and contributions of individuals with ASD. This learning experience reportedly demystified erroneous stereotypes about ASD, and amplified appreciation for the strengths and capabilities of people with ASD to contribute to the ‘bottom line’ of employment contexts:

I realize that there is so much — like when someone says people are autistic you have your own stereotypes, unfortunately. Or how you perceive autism but – not one or two of those participants that I've seen have been anything like each other . . . I think it's important to remember that

they all have their (own) personalities. You know, that it's not a label. And also that their attention to detail is quite amazing. And they're very focused and determined. I mean they can concentrate for a long period of time, which I can't do.

8.2. Tailoring jobs and accommodations

Employers reportedly learned about the importance of finding the right job/job fit for the individual, and how to provide appropriate supports in the workplace. For several employers, particular behaviors associated with ASD (e.g., repetitive behaviors, attention to detail) helped them learn how to tailor jobs to facilitate success. Other employers reportedly gained knowledge about accommodations needed, and learned new approaches such as encouragement, patience, being specific when providing instruction,

and tailoring instruction based on how an individual learns (e.g., modelling behavior or graphically mapping processes for visual learners). As one partner reflected,

I guess what this program did is identify (the importance of) making sure that you do spend the time to get to know the individual to understand their skills, and also maybe . . . what their triggers are, where they get sidetracked, or what may be a distraction for them and how to make sure that they can get back on task . . . so making sure that you're finding the right role.

8.3. Employee and employer growth

For several employers, EWC program involvement reportedly yielded greater understanding about people with ASD and gratification in witnessing their growth and affinity for employment, with several employers noting a positive attitude and work ethic (e.g., eagerness, commitment) among many interns with ASD. As an example, an employer observed substantial engagement and gain:

It (EWC) has been a success, a step that has lifted them . . . one step closer to not only self-identity but self-sufficiency, knowing that they can in some way do something or get something. That's exciting at any level . . . Learning how to develop workplace skills faster . . . than we ever thought possible. Like all of that excitement is just – it breeds a tremendous positivity in the workplace.

Employers vicariously identified knowledge and attitudinal gains as a result of engaging with individuals with ASD in the workplace. In several cases, these gains were viewed to have directly resulted in improved organization and human resource practices:

For me personally, it taught me like a great deal of patience. It taught me to be I guess more, more kind and more nurturing . . . I'm sometimes . . . too blunt and very to the point and I just expect my staff to (comply) . . . But it really helped me with my staff . . .

8.4. Organizational/workplace advancement

Several employers/supervisors described positive reports from their staff who identified gaining awareness about traits, skills and challenges of individuals

with ASD. Employers noted gains from the engagement of individuals with ASD, even with short-term employment access, including overall workplace productivity and quality of work, as illustrated below:

I think for us it was also beneficial to have (individuals with ASD in the workplace) because not only did they help us with our workload, but they were also . . . structured in the way they did things. They kind of reminded us of how we're supposed to do things properly. Sometimes we just rush through things, but watching them do things so correctly made us realize that.

8.5. Continued barriers to hiring and sustained employment

Some employers identified challenges that they thought might impede inclusive hiring. For instance, several stated that the potential to hire and support an employee with ASD in the workplace would be contingent on funding and personnel that could provide supervision and support. Several felt that existing job duties would likely only be suitable for some individuals. For a few employers, hesitance to hire reflected what they perceived to be a lack of viable transportation to/from the worksite. For one employer, inclusive hiring was viewed as not currently tenable due to macro-economic issues that precluded business expansion.

As illustrated here, there was a range of barriers to employers' intention to diversely hire. Yet on balance, they conveyed resonance with employing individuals with ASD, which they felt had been heightened by engaging directly with these individuals in work activities, and by receiving education about ASD and employment.

9. Discussion

Individuals with ASD who completed employment readiness support and job sampling benefitted from this intervention, as did employers who supported their engagement in workplace settings and received education about ASD and employment. Employers conveyed inclusive attitudes and greater intentionality related to inclusive hiring, along with EWC program engagement. The literature generally concurs with these findings (Houtenville & Kalargyrou,

2015; Morgan & Alexander, 2005; Nesbitt, 2000; Scott et al., 2015); however, this study amplifies the contention that employer knowledge and attitudinal gains seemingly emerge along with ASD-related education for employers as well as relationship formation between individuals with ASD and employers in the work context. Education to employers warrants strategic advancement in seeking transition from just *awareness to acceptance and action* such that people with ASD are more readily given opportunity to be meaningfully employed.

As in the general disability literature (Hernandez, Keys, & Balcazar, 2000; Ju, Roberts, & Zhang, 2013; Kregel & Tomiyasu, 1994; Popovich, Scherbaum, Scherbaum, & Polinko, 2003; Unger, 2002), employers reported numerous benefits from the experience of working with persons with disability, including ASD (Mawhood and Howlin, 1999). Some of these benefits included personal development benefits to the employer such as gaining knowledge about ASD, understanding the importance of job fit, and greater appreciation of inclusive employment impacts such as productivity, workplace morale, and quality of work. In several cases, engagement encouraged employers to initiate or advance inclusive hiring.

Yet similar to the literature (Cimera & Cowan, 2009; Hernandez & McDonald, 2000; Scott et al., 2017), employers in this study identified negative expectations and concerns related to employing individuals with ASD. In this study, perceived challenges to inclusive hiring included questions about individual ability to complete all required work, uncertainty or doubt about whether the employer had sufficient capacity for needed accommodations, employer discomfort or unfamiliarity with ASD, and perceived safety risks. Of further concern, about two-thirds of employers in this study raised these questions despite being involved in an initiative fostering employment inclusion. Accordingly, this study concurs with literature highlighting barriers to employment access for people with ASD, and the need to move to impact in terms of actual employment gain (Hendricks, 2010; Hurlbutt & Chalmers, 2004; Muller, Schuller, Burton, & Yates, 2003; Nicholas, Roberts, & Macintosh, 2014). This invites further engagement of multiple stakeholders and levels of influence in the employment 'ecosystem'. For instance, a range of policy support initiatives may be needed, as well as augmentative services including accessible job coaching to support individuals with ASD and their employers, and community services that sup-

port employment sustainability (e.g., mental health services). Family engagement, as available, may be needed in proactively addressing individual and family needs. Advocacy and education focused on inclusive opportunity to engage people with ASD in workplace settings are important priorities, including confronting employer misconceptions and other barriers (Ju et al., 2013). Targeted employer education and support to self-advocates in how to navigate the workplace are recommended. While a pre-existing relationship with an individual with ASD appeared to be a contributing factor to inclusive hiring, stereotypes and reticence to employing individuals with ASD seemingly remained a barrier among some respondents. These findings speak to the need for widespread and multi-faceted capacity building, including business and broader community education about the benefits of inclusive employment.

It is anticipated, and hoped, that greater experience and awareness may nurture pro-employment attitudes and employer/workplace practice shifts. This is suggested because after participation in the EWC program, 88% of employers reported increased likelihood to hire an individual with ASD. Further, personal connections, inclusive workplace policies, and positive work-related experiences, reportedly advanced employer intentionality related to inclusive employment. Accordingly on balance, getting to know people with ASD, developing better understanding about their fit for employment, and ensuring support, seemed to nurture employers' inclination toward inclusive hiring.

It is interesting to note the difference between female and male respondents on the AAQ. More female respondents (62%) in comparison to male respondents (38%) answered the AAQ, with females being more aware of ASD than males. This raises potential questions related to whether employer openness to ASD, based on both increased participation and awareness, in part might be influenced by gendered perspectives or gender-related experiences in the workplace. It is not possible to derive such a conclusion from this study; hence, further examination is recommended.

Lastly, in this study, job sampling opportunities offered participating individuals with ASD the opportunity to attempt a range of work placements and activities. For employers, this process encouraged new relationships with individuals with ASD and perceived possibilities, all within a neutral context i.e., prior to actually committing to employ the individual. Accordingly, approaches that encourage relationship

building, work exposure and awareness, seem warranted in working towards inclusive hiring.

10. Study limitations and research recommendations

Several study limitations are noted. The inclusion of employers who were amenable to engaging in this program inherently reflected sample bias by virtue of their voluntary participation. This likely entailed an employer base with a disproportionate openness to diversity relative to employee inclusion. Given identified concerns about, and barriers to, inclusive hiring in this sample, even less openness to inclusive hiring could be postulated in the broader population of employers. This possibility is particularly concerning, and invites further inquiry.

This study offered a triangulation of methods which added to the corroborative value of its findings. However, it is acknowledged that measures in the quantitative arm of the study lacked strong psychometric properties and reflected a relatively small sample of employers, thereby limiting confidence in, and generalizability of, findings. Use of a modified questionnaire and a self-design survey invites caution in interpreting findings. In moving forward, psychometrically strong measures need to be developed for this population and substantive focus. Further, such measurement needs to be administered to larger and representative samples optimally within experimental or mixed-method designs. Also, studies using longitudinal designs are recommended.

These limitations and the exploratory nature of this study invite further research to ascertain and evaluate strategies for increased inclusive employment. Ensuring a strong and representative voice of individuals with ASD is critical in rendering research that is accountable to, and grounded within, community-based priorities of the ASD population. This invites further consideration of participatory designs that engage key stakeholders, with study impact targeted at community and society-level change.

11. Conclusion

Direct relational experience with individuals with ASD, employer education, and firsthand observation of the employment aptitudes of individuals with ASD – all within a supportive context – appear to positively engage employers and potentially decrease barriers to

inclusive hiring. While widespread stereotypes and hiring practices continue to challenge employment access for individuals with ASD, the opportunity for employers to work with people with ASD and gain awareness about ASD, indeed appears to contribute to employer proactivity in inclusive employment.

Author contributions

DBN contributed to the interpretation of findings, and drafting the manuscript; WM contributed to data collection and the interpretation of findings, and contributed to drafting the manuscript; RZ contributed to the analysis of the data and drafting of the manuscript; CD contributed to drafting the manuscript.

Conflict of interest

Drs. Nicholas and Mitchell developed the EmploymentWorks Canada curriculum, and Dr. Nicholas, Dr. Mitchell, and Ms. Dudley have received financial remuneration from the Sinneave Family Foundation.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Conjoint Faculties Research Ethics Board at the University of Calgary.

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