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# Research in Autism Spectrum Disorders

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## Autism and employment: What works

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### ABSTRACT

**Introduction:** People with autism have been identified as having a substantial contribution to make in the technology sector. Their intellectual abilities coupled with their focus and attention to detail have been recognized as desirable traits making them highly productive. However, these individuals report difficulties in employment, and there is a paucity of literature concerning the factors that attract and retain them; particularly from their viewpoint.

**Method:** Data was collected from 76 adults; 44 with autism and 32 neuro-typical (NT; i.e., adults without autism). Data were analysed using inductive thematic analysis in which the major themes of: work relationships, and environment; as well as person-organization fit, diversity climate, and bargaining emerged. Quantitative analysis then determined if these themes were more/less likely to be reported by individuals with autism.

**Results:** Those with autism (vs NT individuals) were more likely to indicate enablers, or reasons for occupational longevity consistent with collegial understanding, the physical occupational environment, and circumstances that limited contact with others.

**Conclusions:** The results reflect what is known clinically about Autism Spectrum Disorder, and are consistent with Conservation of Resources and Social Exchange theories. It was concluded that vocational assistance for individuals with autism requires intervention at both individual and organizational levels.

### 1. Introduction

Gaining or sustaining employment is challenging for many people, especially those with autism (i.e., autism spectrum conditions) who do not have an intellectual disability (Griffith, Totsika, Nash, & Hastings, 2012; Hurlbutt & Chalmers, 2004; Müller, Schuler, Burton, & Yates, 2003). This is despite many individuals with autism possessing post-secondary qualifications (Ohl et al., 2017), a potential protective factor to unemployment (Australian Bureau of Statistics, 2014; Ohl et al., 2017).

Although individuals with autism have difficulty with social-communication, and often sensory sensitivity issues (American Psychiatric Association [APA], 2013), these individuals offer productivity advantages to the labor market. These include: reliability (Scott et al., 2017), attention to detail (Kéita, Guy, Berthiaume, Mottion, & Bertone, 2014; Scott et al., 2017), and excellent visual skills (Jiang, Palm, DeBolt, & Goh, 2015; Remington, Swettenham, Campbell, & Coleman, 2009; Soulières et al., 2009). Further, research suggests that the direct cost of occupational adjustments for individuals with autism is minor compared to the adjustments needed for people with physical or sensory disabilities (Roehrich, Grabanski, & Fischer, 2016).

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The technology sector has recognized and responded to the valuable contribution individuals with autism can make to organizations and, importantly, a businesses' productivity (Hedley, Wilmot, Spoor, & Dissanayake, 2017). There are many global examples, such as those from Auticon (Germany; 2016), AutonomyWorks (US; 2017), Microsoft (global; 2017), Passwerk (Belgium; 2017), SAP (Australia, Brazil, Canada, the Czech Republic, Germany, India, Ireland, US; 2017), Specialisterne (Australia, Denmark; 2017), ULTRA Testing (US; 2017), and Willis Towers Watson (global; 2016), who have all engaged in targeted recruitment of people with autism. However, despite such initiatives, and evidence indicating people with autism could be employed in a wide range of industries (Ohl et al., 2017), these potentially productive individuals continue to report high levels of under- and unemployment (Griffith et al., 2012; Hurlbutt & Chalmers, 2004; Müller et al., 2003).

Developing our understanding why this is so has important implications with respect to both human rights (Office of the High Commissioner for Human Rights (United Nations), 1996; United Nations Committee on the Rights of Persons with Disabilities [UNCRPD], 2006) and the economic prosperity of organizations (Hilton, Scuffham, Vecchio, & Whiteford, 2010; Lerner et al., 2010). Therefore, examining employment enablers for individuals with autism, and whether these differ from neuro-typical individuals (NT; i.e., people without an autism spectrum condition) has important implications for focused intervention to benefit this population.

Factors related to vocational success and occupational longevity (OL) have been explored in the general population (e.g., Bryant & Allen, 2013; Deery & Jago, 2015; Umamaheswari & Krishnan, 2016). Yet little is known about these in relation to those with autism. Subsequently, the extent to which policy and labor market support and intervention strategies should focus on factors related to individuals or organizations, or a combination of the two, remain unknown. From what is known, compassionate organizational cultures (Schur et al., 2014) and employers that value diversity are more likely to gain and retain employees with autism (Hedley et al., 2018; Roehrich et al., 2016). However, other suggested vocational enablers are less clear.

It has been suggested that positive, or favorable, social interaction is an enabler for individuals with autism at work (Autism Spectrum Australia [Aspect], 2013). Yet the constituents of this remain ill-defined by the authors. Further, and to the contrary, social interaction has been reported by those with autism as stressful (Schupp, Simon, & Corbett, 2013). That is, it comes at a psychological cost. This supports Conservation of Resources (COR) theory which suggests that stress occurs when net resources are lost, or the threat of loss is present (Hobfoll, 2001). Given that those with autism experience challenges with social interaction (American Psychiatric Association [APA], 2013), they may possess fewer resources to cope with interpersonal relations in the workplace resulting in stress. In addition, as persons with autism are more vulnerable to stress (Attwood, 2006; Bishop-Fitzpatrick, 2016; Bishop-Fitzpatrick, Minshew, Mazefsky, & Eack, 2017; Hirvikoski & Blomqvist, 2015), this susceptibility could further decrease their ability to manage social demands in the workplace owing to having fewer resources. This is consistent with *loss spirals* per COR theory; i.e., those lacking resources are more vulnerable to future losses (Hobfoll, 2001). Thus, it could be suggested that people with autism may prefer to limit interaction with others owing to limited resources to cope with social-communication demands; as opposed to social-interaction being positive, or an enabler. If this is the case, limiting interaction in the workplace would also be consistent with Social Exchange (SE) theory which posits that individuals seek to maximize benefits and minimize costs in interpersonal relationships (Blau, 1964; Emerson, 1976). Therefore, as relationships cost resources for people with autism, this offers a theoretical basis for potential solutions to these issues if the problems are at the individual and not organizational level.

It has also been suggested that “enjoyment of ... the work environment” acts as an enabler and perhaps a protective factor for those with autism (Autism Spectrum Australia [Aspect], 2013, p. 33). However, it is unclear what factors in the work environment contributed to “enjoyment” or a favorable experience. Other research suggests that sensory sensitivity may lead to increased stress among individuals with autism (Corbett, Muscatello, & Blain, 2016; Haney & Cullen, 2017; Smith & Sharp, 2013). Consequently, it is possible that attention to and care managing such potential workplace stressors may act as an enabler.

It is challenging to recommend effective workplace adjustments or individual supports given lack of clarity and paucity of knowledge in this arena. Thus, the aim of this study was to investigate the employment enablers for individuals with autism, and determine if these differed from those who are NT. Thus, these factors may be largely exploratory. However, considering what is known, it could be hypothesized that individuals with autism would be more likely than NT individuals to report enablers consistent with workplace relationships that were understanding or required minimal interaction with others, and sensory friendly work environments.

## 2. Method

The protocol for this research was reviewed and approved by the Human Research Ethics Committee of the overseeing university; approval number 1749897.

### 2.1. Participants

Only participants who reported to reside in Australia were included in the present research given the potential for cultural differences across countries. Out of these 76 people who responded, there were no significant demographic differences between those with autism and NT individuals (see Table 1), with three exceptions. First, the groups differed significantly on their Autism Spectrum Quotient (AQ; Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001) total score ( $t_{(74)} = 17.74, p < .001$ ); a screening tool for autistic traits. Those in the autism ( $n = 44$ ) group scored at or above the recommended cut off ( $\geq 32$ ) on the full-scale AQ and possessed a self-reported diagnosis of an autism spectrum condition; conversely for those who were in the NT group ( $n = 32$ ). People with autism reported they were diagnosed with such by one, or in some instances several of the following: psychologist (71%,  $n = 31$ ), psychiatrist (36%,  $n = 16$ ), other health professional (9%,  $n = 4$ ), or paediatrician (2%,  $n = 1$ ). Secondly, those with autism were more

**Table 1**  
Participant Demographics.

	Individuals with autism	Neuro-typical (NT) individuals
Number	44	32
Age Range (Years)	18–68	23–62
Mean Age (Years)	38.68	38.97
Standard Deviation Age (Years)	13.38	10.14
Autism Spectrum Quotient (AQ) Mean	38.89*	16.25*
AQ SD	4.37	6.75
Mean Age of Autism Diagnosis in Years (where applicable)	33.46	N/A
Highest Level of Completed Education (%)		
Year 9 High School or below	2.3	0.0
Completion of Year 10 High School or junior vocational school	2.3	3.1
Completion of High School or advanced vocational school	34.1*	12.5*
Diploma or Advanced Diploma	13.6	18.8
Bachelor degree including Honours or equivalent	36.4	50.0
Master's degree	9.1	9.4
Doctoral degree	2.3	6.3
Previously Diagnosed Health Conditions (%)		
Anxiety Disorder	56.8*	25.0*
Attention Deficit Hyperactivity Disorder	13.6	3.1
Bipolar Disorder	13.6*	0.0*
Depression	63.6*	34.4*
Eating Disorder	6.8	3.1
Obsessive Compulsive Disorder	13.6*	0.0*
Personality Disorder	6.8	3.1
Post-Traumatic Stress Disorder	38.6*	3.1*
Other (e.g., asthma, ulcerative colitis, polycystic ovarian syndrome)	36.4	15.6
None (absence of a health condition)	15.9*	53.1*

\* Significant difference between those with autism vs NT individuals,  $p < .05$  examined by  $t$ -test for continuous variables after log transformation, and chi-square/Fisher's Exact Test for categorical variables, i.e., frequencies.

likely than NT individuals to have completed high school as their highest level of educational attainment ( $\chi^2_{(1)} = 4.61, p = .03$ ). Finally, those with autism were significantly more likely than NT individuals to have been diagnosed with a health condition ( $\chi^2_{(1)} = 11.88, p = .001$ ). Specifically, these were anxiety disorder ( $\chi^2_{(1)} = 7.64, p = .01$ ), bipolar disorder (FET,  $p = .04$ ), depression ( $\chi^2_{(1)} = 6.35, p = .01$ ), obsessive compulsive disorder (FET,  $p = .04$ ), and post-traumatic stress disorder ( $\chi^2_{(1)} = 12.93, p < .001$ ).

Owing to the anonymous nature of data collection, a separate sample of nine participants were recruited to member check responses from the autism grouping. This was to increase rigour, also known as *trustworthiness* of the data (Krefting, 1991), helping to ensure reliability and validity (Kvale, 1996). These participants were five women and four men with autism aged 22 to 54 years ( $M = 42.89; SD = 10.04$ ) with an average AQ total score of 39.44 ( $SD = 4.50$ ); see Table 2 for their demographic information.

## 2.2. Materials and procedure

### 2.2.1. Recruitment

Participants in each of the samples were recruited via autism focused and other social media sites (i.e., Facebook; including Asperger Syndrome Awareness Help Page, Autistic not Weird, tips-n-tricks-4-aspies.com, Beyond the School Gates, Keilor Psychology), the researchers' professional and social media networks (e.g., Twitter), and various websites of autism support organizations throughout Australia (e.g., Aspect, Tony Attwood Clinic). Advertising targeted all persons over the age of 18 years without an intellectual disability, including those with and without autism. Survey participants were recruited over a 10-month period.

**Table 2**  
Participant Demographics, Member Checking Sample.

Gender	Age (years)	Highest Level of Completed Education	Autism Spectrum Quotient total score
Woman	38	Doctoral degree	43
Woman	45	Master's degree	38
Woman	47	Bachelor/Honours degree	33
Woman	35	Bachelor/Honours degree	42
Woman	22	High School or advanced vocational school	33
Man	49	Bachelor/Honours degree	46
Man	54	Bachelor/Honours degree	41
Man	43	High School or advanced vocational school	37
Man	53	Year 9 High School, or below	42

Participants to member check responses were recruited over a five-week period, and were from the greater Melbourne area; Victoria, Australia. No incentives were offered to participate, other than light refreshments for the participants who were utilized to member check responses.

### 2.2.2. Materials

To ascertain the enablers to workplace participation, respondents were asked to comment in an anonymous online survey. The question asked was:

“Think about the things or people that make it easier for you to get or maintain work, including any 'reasonable adjustments' you may have experienced a) What has made it easier for you to participate in the workforce? Or, b) What would you like to see that would make sustaining and thriving at work possible for you?”

Further, information regarding occupational longevity (OL) was gained by asking:

“Think about the longest period of time you have been employed in the same role with the same employer. a) How long ago was this? b) What industry was this was in? c) Why do you think it was 'successful'?”

Prior to the survey launch, it was piloted among a sample of women and men with autism and NT women and men to check for question clarity. As a result, question wording was slightly altered. Open ended survey questions were asked given the topic is not adequately grounded in the literature.

Member checking of responses from the survey was completed with a one-and-a-half-hour focus group. Only participants with autism attended on the day of the study, although NT participants advised their intention to attend. The transcript from the focus group was audio-taped and transcribed verbatim. The questions presented to these participants were different than those provided to survey participants to gain a deeper understanding of workplace enablers and reasons for OL. Additional enquiry into OL was not pursued owing to time constraints, and it was thought this might be captured within a discussion on employment enablers. Therefore, participants were asked to discuss:

“What are the enablers to employment? For example, is there anything/anyone that makes it easier to gain or maintain work? Thinking about the enablers and barriers to employment, in your group please discuss:

- a) What relationships make work more/less difficult?
- b) What are the job tasks/roles that you prefer, or not, that make work more/less difficult?
- c) Thinking about the organization, are there any organizational factors that make working more/less difficult?
- d) What are the well-being considerations in relation to work?”

### 2.3. Analyses

Guided by Braun and Clarke's (2006) procedure, the data were read and re-read at least four times before applying inductive thematic analysis (ITA). NVivo Pro 11 (QSR International, Melbourne, Australia) was used to process (code) these data, generating major and minor themes for each question; enablers and reasons for OL. Interpretative Phenomenological Analysis (IPA) was considered as an alternative to ITA given IPA focuses on the participant's interpretations and subjective experiences (Smith, Flowers, & Larkin, 2009). However, because IPA is grounded in a phenomenological epistemology, and given limited knowledge on the topic, ITA was used as it is not wedded to any existing framework (Willgig, 2013). Any relevant theoretical underpinnings connecting the data were made post-hoc. Yet, deductive thematic analysis was applied to the participants' data from the focus group.

After the primary researcher coded the survey data, a secondary researcher familiar with the project double coded 10% of the data ( $\kappa = .86$ ). A different secondary researcher also double coded 100% of the data from the focus group ( $\kappa = .96$ ). Discrepancies between the primary and secondary researchers' coding of responses to themes were discussed and any necessary revisions agreed by consensus. Theme names were generated collaboratively by the primary and secondary coders, based on what best represented the central idea.

Once all responses were coded, major themes from the ITA were determined when more than 20% of participants' responses were included in a theme. Minor themes were indicated when more than 10% of participants' responses were included. Saturation was reached at 11 coded responses, though analysis continued after saturation to ensure rigour (Creswell, 2014; Mason, 2010).

Following the ITA in NVivo, the identified themes were transcribed into the Statistical Package for the Social Sciences (SPSS; v23; IBM Corp., Armonk, New York) and their distribution analysed using Chi-square; or Fisher's Exact Test (FET) where expected counts were under five (Tabachnick & Fidell, 2007). These comparative statistics were used to determine which participant group (i.e., autism or NT) were more likely to indicate a response consistent with any one theme emerging from the ITA. The presence, or absence, of a participant's response to a theme was binary coded within SPSS using a single blind procedure to limit the risk of researcher bias misinterpreting the way a response could be coded. To minimise the risk of a Type I error, while not inducing Type II (Tabachnick & Fidell, 2007), a conservative alpha ( $\alpha = .01$ ) was applied.

## 3. Results

The qualitative findings concerning employment enablers and OL are presented below and were confirmed by member checks. The themes are followed by quantitative analysis revealing similarities and differences between the reports of those with autism and

NT individuals.

### 3.1. Workplace enablers

Two major themes emerged from the data describing vocational enablers. These were *work relationships* (86%,  $n = 65$ ) and *work environment* (30%,  $n = 23$ ). From *work relationships* four minor themes emerged, these were *support*, *understanding*, *communication*, and *minimal interaction*. From *work environment*, two minor themes emerged; *physical environment* and *culture*.

#### 3.1.1. Work relationships

**3.1.1.1. Support.** Stemming from the major theme of work relationships, the minor theme of support was defined as either formal or informal constructive occupational relationships enabling the individual to effectively participate in the labor market. This was reported by 63% ( $n = 48$ ) of those who contributed to the overarching theme of work relationships. Example responses included:

“Well, I love the pool I'm working at now. My manager knows that I love the cold, rainy days, he knows I love winter more than summer so he checks the weather forecast and often rosters me to work on wet days, cold days. I think I'm one of the few lifeguards who doesn't mind working out in the rain so benefits him too.” (woman with autism, 23 years).

“Having mentors has been really helpful as they have been able to provide constructive feedback on a range of different situations. Through their experience I can start to learn from my mistakes and learn better strategies for approaching situations.” (woman with autism, 32 years).

“My current job is in a high[-]end customer service retail setting, which I have been at for 3 years. I think the reason for its success is largely the people I work with, we get along quite well and the manager that hired me [is] also pretty good.” (NT man, 23 years).

“Having a chat/laugh with colleagues; working with colleagues who are passionate about their jobs ...” (NT woman, 37 years).

**3.1.1.2. Understanding.** Responses coded to the theme of understanding were consistent with socially inclusive attitudes of colleagues or managers. This was stated by 37% ( $n = 28$ ) of those in the sample from the major theme. For example:

“Having the understanding and patience from managers, supervisors and the team you work with. This helps the individuals and collective workforce work well together.” (woman with autism, 23 years).

“An open understanding of the issues faced and problem solving to overcome them. Also an understanding of the condition [autism] itself.” (man with autism, 26 years).

“Had a very reasonable, understanding and empathetic boss. (Although, I was not aware of being on the autism spectrum at this point). I could go about my day setting up analyzers and running tests with minimal interruption.” (woman with autism, 33 years).

“I think my boss valued the quality of my work, feedback was provided regularly - but informally, and generally my co-workers were really understanding / accepting of my difference ... I might have been cut a bit more slack for behavioural issues.” (woman with autism, 38 years).

**3.1.1.3. Communication.** Further, clarity of communication relating to instructions and occupational interactions was reported by 16% ( $n = 12$ ) of participants within the major theme of work relationships. Exemplar responses included:

“The best boss ever, came over to me in the cubicle, asked a question his boss had asked him. he listened carefully to my answer, repeated the key points back to me and left... this is communication as it should be. A two[-]way process.” (man with autism, 58 years).

“I need my work expectations and responsibilities to be clearly explained and documented.” (woman with autism, 45 years).

“I prefer written feedback so I can address areas I'm not so good at rather [than] being told that several people have spoken to me and not knowing who or when [that occurred].” (woman with autism, 26 years).

“[I worked in] automotive design - test engineer. Jobs arrived in the form of a test request - a problem that needed solving. Department culture was that you then took the test request back to whoever wrote it and discussed what exactly the problem was, what they already knew, what they wanted to know, etc. Then we designed a test regime and a test rig to apply the regime to the components, working with tradesmen in the lab[oratory] who built and operated the actual rigs we developed. Give me a problem to solve. Explain clearly what exactly it is that you want. Give me the resources and support needed to solve the problem. Get out of my hair while I solve your problem. Worked very well.” (man with autism, 52 years).

**3.1.1.4. Minimal interaction.** Some participants preferred workplace communication and interactions to be minimal (11%,  $n = 9$ ). Thus, minimal interaction with others was another vocational enabler. To illustrate:

“... working alone, without public contact.” (man with autism, 35 years).

“I was able to work independently, with my own office and my work required minimal social interaction.” (man with autism, 68 years).

“Finding tasks that can be done alone, since this is much less stressful.” (woman with autism, 36 years).

### 3.1.2. Work environment

3.1.2.1. *Physical environment.* Alteration of the physical environment to accommodate oneself to suit sensory sensitivities was described by 16% ( $n = 12$ ) of participants within the major theme of work environment. This enabler can be illustrated by the following quotes:

“My biggest wish for accommodation at work would be to have [the] radio turned off. It really bothers me, sometimes upsets me, but everyone else wants it on so I just to have to suffer.” (woman with autism, 31 years).

“Less open office environments to reduce noise.” (man with autism, 47 years).

“I’m very sensitive to the bright, fluorescent lights inside, they give me headaches and make me dizzy. When I first started working at this place my manager did not know about my sensory issues but he noticed how it affects my work so where it was possible, he made adjustments. He lets me wear sunglasses inside now, even when I’m talking to members/clients. We explain to them and they are fine about it.” (woman with autism, 23 years).

“I haven’t told my employers about my diagnosis. But as I work with clients with sensory overload then I normally will try to create an environment for both them and myself to enjoy (letting in natural light, putting pleasant sensory lights, sounds and smells on in the room).” (woman with autism, 21 years).

3.1.2.2. *Culture.* In conjunction with the physical environment, the other minor theme emerging from work environment was culture. Defined as the “feel” of the workplace, or how tasks and vocational interactions are approached, culture encompassed 15% ( $n = 11$ ) of participants’ responses. Exemplar comments included:

“I find generally it is easier to participate in the workforce when I am calm, and the workplace has a calming approach to activities (i.e. calm and tolerant staff and an air of kindness.” (woman with autism, 34 years).

“The atmosphere of the workplace itself. We have an air of comfort about our workplace that makes dealing with customers quite a pleasant experience.” (NT man, 23 years).

“Flexibility for staff to fit work around their study, family, social interests.” (NT man, 41 years).

“Transparent workplace (rules available at [the] outset).” (NT woman, 33 years).

### 3.1.3. Comparative statistics: enablers

When comparing the frequency of responses to each theme, quantitative analyses demonstrated that persons with autism and NT individuals were equally likely to report work relationships broadly as a vocational enabler (FET,  $p \geq .01$ ,  $\phi = .10$ ). This was also the case for the minor themes of support ( $\chi^2_{(1)} = 7.78$ ,  $p \geq .01$ ,  $\phi = .32$ ), communication ( $\chi^2_{(1)} = 3.78$ ,  $p \geq .01$ ,  $\phi = .22$ ), and minimal interaction (FET,  $p \geq .01$ ,  $\phi = .29$ ). Yet, individuals with autism compared to NT individuals were more likely to report that the ‘understanding’ of others in the workplace was a vocational facilitator ( $\chi^2_{(1)} = 14.08$ ,  $p < .01$ ,  $\phi = .43$ ).

Further, those with autism and NT individuals were equally likely to state that the work environment was an enabler overall ( $\chi^2_{(1)} = .12$ ,  $p \geq .01$ ,  $\phi = .04$ ), as well as workplace culture (FET,  $p \geq .01$ ,  $\phi = .15$ ). Yet, adults with autism (vs NTs) were significantly more likely to indicate that control over the physical environment was an enabler ( $\chi^2_{(1)} = 10.36$ ,  $p < .01$ ,  $\phi = .37$ ).

## 3.2. Occupational longevity

There was some attrition with respect to those completing the second section of the survey regarding OL. Consequently, the following analyses were limited to 39 people with autism and 31 NT individuals. For these analyses, three major and six minor themes emerged from the data.

The first major theme was *person-organization fit*, stated by 67% ( $n = 52$ ) of participants. This revealed the minor themes of *match between personality and skill*, the opportunity for *skill building*, and *pay or conditions*. The second major theme was *diversity climate*; described by 31% ( $n = 24$ ) of respondents. Associated minor themes were *acceptance* and having occupational circumstances conducive to *minimal contact* with others. The final major theme was *bargaining*, reported by 21% ( $n = 16$ ) of the sample with no minor themes.

### 3.2.1. Person-organization fit

3.2.1.1. *Match between personality and skill.* The first minor theme making up the major theme of person-organization fit was a match between personality and skill; reported by 49% ( $n = 38$ ) of the sample from the major theme. Participant comments coded to this minor theme described that finding a role that matched personality, task preferences, or existing skills was a reason for OL. For example:

“I was good at the technical aspects of my job and knowledgeable on the products.” (NT woman, 24 years).

“Good match to my personal skills and interests.” (man with autism, 68 years).

“The job was successful because it was diverse and interesting to me and because I was good at it.” (NT man, 44 years).

“[The] work was aligned with my interests and skills. Involve[d] some intellectual challenge.” (woman with autism, 32 years).

“I was involved in the hardware industry. My role was a perfect mix for me. I ran a small warehouse which involved a lot of physical work. I designed door furniture for manufacture. I designed low voltage circuits for use in the hotel locking system environment. I designed and maintained complex databases to meet customer needs. I gave technical phone support and had a

high level of autonomy in my role. The boss was very aware of my strengths and weaknesses and used my skill set very well.” (man with autism, 57 years).

**3.2.1.2. Skill building.** Some 13% of respondents ( $n = 10$ ) reported that gaining or building upon knowledge and skills was the reason they stayed in their longest employed position. Exemplar comments included:

“I was able to gain communication skills.” (woman with autism, 21 years).

“Learned a few tricks with computers.” (NT man, 47 years).

“For the last 13 years I have been working in similar roles with the same employer (IT industry). Success was due to having regular opportunities for new challenges, and being able to take on greater responsib[i]l[ity] and work on new projects and roles in the organization that meant I stayed interested and motivated.” (NT man, 41 years).

“Initially part of a graduate program, which offered support, ongoing education, and variety of skill building opportunities ... ongoing professional development offered.” (NT woman, 46 years).

**3.2.1.3. Pay and conditions.** Also within the major theme of person-organization fit, stated by 23% ( $n = 18$ ) of participants, monetary gains, flexibility, autonomy, or work-life balance was another reason for OL. For example:

“I was able to balance it with my uni[versity] studies.” (woman with autism, 21 years).

“Independent schedule, a lot of outreach/out of office work.” (NT woman, 33 years).

“Plenty of flexibility with shifts and roles to do. I'm bored but it pays too well to leave right now.” (woman with autism, 37 years).

### 3.2.2. Diversity climate

**3.2.2.1. Acceptance.** Nineteen percent ( $n = 15$ ) of the sample stayed in a role because they felt accepted, valued, as well as having work relationships that were understanding. Exemplar comments included:

“Other people in the work place share my interests and include me in conversations.” (woman with autism, 32 years).

“My skills were recognised by various departments and used to great effect.” (man with autism, 58 years).

“Successful because there are houses with people with autism, with some good workers who understand autism and who are used to different types of workers.” (woman with autism, 43 years).

**3.2.2.2. Minimal contact.** For some (13%,  $n = 10$ ), staying in a role was due to their minimal or brief contact with other people. For instance:

“I think I thrive ... because it's minimal patient con[t]act.” (woman with autism, 31 years).

“I managed to stay in that job longer since I could ... spend less time with customers and staff overall.” (woman with autism, 36 years).

“I didn't have to have many face to face interactions[,] which I enjoyed.” (woman with autism, 31 years).

“My longest term of employment has been with my current employer: 8 years. I currently work for a car park operator, originally as a car park attendant but in admin[istration] for the last 18 months. My reliability quickly earned me a care taker placement where I worked alone and only had limited contact with the public.” (man with autism, 47 years).

“Not speaking to anyone for the entire shift was a blessing not a hindrance.” (man with autism, 42 years).

### 3.2.3. Bargaining

Responses consistent with the theme “bargaining” advised that staying in a job was because the positives of the position outweighed the negatives, or the participant felt like they had to stay in the role. For example:

“Successful? It wasn't successful. I got passed over for promotion lots! I stayed there be[cause] I was studying my Juris Doctor in Law at the time. It made sense to stay in a relevant role.” (woman with autism, 34 years).

“Worst job in my life!!! I've only stuck at it as we have a mortgage to pay.” (woman with autism, 42 years).

“I liked it because it was a role with variety, but did not use my intelligence and poor pay[,] but [it was] all I could get at the time.” (woman with autism, 40 years).

“I've been [there] so long because there was no training and the job market dried up, now I am anxious about moving to another employer.” (man with autism, 49 years).

### 3.2.4. Comparative statistics: occupational longevity

Individuals with autism and NT individuals were equally likely to report that person-organization fit was generally a reason for OL ( $\chi^2_{(1)} = 7.49, p \geq .01, \phi = .31$ ). Similarly, the match between personality and skill ( $\chi^2_{(1)} = 1.07, p \geq .01, \phi = .27$ ), skill building ( $\chi^2_{(1)} = 5.82, p \geq .01, \phi = .27$ ), as well as pay and conditions ( $\chi^2_{(1)} = .002, p \geq .01, \phi = .01$ ) showed no difference between those with autism and NT individuals.

Yet, people with autism were more likely, compared to NT individuals, to state diversity climate as a reason for OL ( $\chi^2_{(1)} = 8.01$ ,

**Table 3**  
Participant Role Type of Longest employment.

Role Type	Role Examples	Comparative Results; Individuals with autism vs Neuro-typical individuals
Community services	Psychologist, resource protection worker, disability support worker, public service employee, bushfire hazard control worker, bank tellers/bankers, tutors	$\chi^2_{(1)} = .89, p \geq .01$
Retail	Breakfast chef, check-out operator, graphic designer, canteen manager	$\chi^2_{(1)} = .79, p \geq .01$
Science	Engineer, hydrologist, telecommunications worker, information technology personnel	$\chi^2_{(1)} = .67, p \geq .01$
Administration and labor	Outgoing call centre worker (e.g., surveys), car park attendant, factory worker	$\chi^2_{(1)} = 5.39, p \geq .01$

$p < .01, \phi = .32$ ), specifically if minimal contact with others was possible (FET,  $p < .01, \phi = .35$ ). However, both participant groups were equally likely to report acceptance ( $\chi^2_{(1)} = 1.00, p \geq .01, \phi = .11$ ) and bargaining as reasons to stay in a role ( $\chi^2_{(1)} = 3.21, p \geq .01, \phi = .20$ ).

### 3.2.5. Role type of longest employment

A further four major themes emerged concerning role type of longest employment, these were: *community services* jobs (46%,  $n = 38$ ), *retail* (20%,  $n = 16$ ), *science* (20%,  $n = 16$ ), and *administration and labor* roles (15%,  $n = 12$ ). Given the factors and industries of OL for people with autism has gained little attention in published literature, all themes arising from the data were analyzed. See Table 3 for examples of role types as well as comparative statistics. It was determined that individuals with autism were equally likely, compared with NT individuals, to be employed in each role type.

## 4. Discussion

People with autism report difficulties finding and maintaining meaningful employment (Griffith et al., 2012; Hayward, McVilly, & Stokes, 2018; Hurlbutt & Chalmers, 2004; Müller et al., 2003). However, in some industries, such as in the IT and technology sector, their personal attributes have been identified as potential strengths contributing to organizational productivity (see, Microsoft, 2017; Passwerk, 2017; Specialisterne, 2017). The present research sought to clarify the occupational variables which attract employees with autism to compare these to NT individuals, and explore the factors that might contribute to their retention. It was proposed that such data could inform policies and supports to harness their potential, and to assist them finding and keeping meaningful employment.

Based on previous findings (Baldwin, Costley, & Warren, 2014; Gal, Landes, & Katz, 2015; Griffith et al., 2012; Hurlbutt & Chalmers, 2004), it was hypothesized that individuals with autism would be more likely than NT individuals to report enablers consistent with workplace relationships that were understanding or required minimal interaction with others. As hypothesized, the moderation and management of interpersonal relationships in the workplace appears vital for people with autism; thus, implying consistency with COR theory. It appeared that a diversity climate may replenish, or not take away resources. It is suggested that social inclusion for people with autism is possible with the right support, without it, it may be easier to avoid the person/s who cannot deliver on this. Yet to help facilitate this, the key may be balancing the need to belong with the ability of the individual with autism, as well as the work group dynamic. In conjunction with this, support appeared to be leader focused as opposed to peer focused. The traits of leaders that seem to emerge from the data included adaptability, gaining personal knowledge of employees, patience, and understanding. It is noteworthy that these traits overlap with individualized consideration that is a foundational component of transformational leadership (Bass, 1999). Although it was not apparent whether there were endemic issues within the occupational environment where diversity was not embraced. It was apparent in the data that there were two foci which intervention could target, that of organizations and leaders, and the other individual.

Perhaps to cope with vocational challenges related to interpersonal relationships, the opportunity to minimize contact with others in the workplace was a reason individuals with autism in the present study stayed in their role. However, coping relationships were not examined in the current research, but could be a useful focus in a future study. Yet, it is plausible that people with autism wished to limit their interaction with others because it is a suggested source of stress (Haney & Cullen, 2017; Schupp et al., 2013). The experience of stress could be due to the cost of interaction with others for the individual with autism, owing to their limited natural ability to understand social-communication. Again, this would imply consistency with COR (Hobfoll, 2001), and SE theories (Blau, 1964; Emerson, 1976). Given social resources are reduced for employees with autism, some individuals may retain resources (and thus circumvent stress) by avoiding spending these limited stores.

Contributing to potential social resource losses is stress arising from sensory sensitivities, as suggested by others (e.g., Corbett et al., 2016; Haney & Cullen, 2017; Smith & Sharp, 2013). Consistent with previous research concerning the occupational environment (cf. Autism Spectrum Australia Aspect, 2013), the present study confirmed that sensory friendly environments make it easier for people with autism to participate in the workforce. Occupational barriers relating to sensory issues were specifically important to respondents, consistent with those reported elsewhere (cf. Baldwin et al., 2014; Griffith et al., 2012; Hurlbutt & Chalmers, 2004; Lorenz, Frischling, Cuadros, & Heinitz, 2016).

Managerial support to employees with autism who provide the ability to alter their physical environment to help self-manage their sensory needs might facilitate inclusion in the workplace. Participants in this study suggested that employers can assist by

allowing single office spaces and avoiding open plan designs, utilizing telecommuting and other work-from-home strategies, as well as attention being paid to lighting, and mindfulness of scents. Such strategies have been suggested to strengthen organizational commitment (Sadatsafavi, Walewski, & Shepley, 2015), and reduce turnover among employees (Jehanzeb, Rasheed, & Rasheed, 2013; Sahi & Mahajan, 2014).

Nevertheless, education of those working alongside employees with autism may improve awareness and acceptance of the unique challenges they face. While avoiding contact with others might not be feasible, as most vocational environments require some level of interaction, employers may facilitate a reduction in levels or frequency of contact, if desired by the employee with autism. However, understanding the reasons behind wishing for minimal interaction is key to providing support whether this is individually or organizationally targeted. Moreover, employees with autism might be able to gain workplace support including access to resources to manage stress or assistance with removal of stressors.

Further, increased self-awareness of potential occupational difficulties before training and education decisions are made may be abetted by timely diagnoses. Late diagnoses of autism for some individuals, like the present sample whose average age of diagnosis was 33 years, may mean that some chose incompatible career paths, possibly due to lack of awareness of their own situation.

Yet, organizations that value diversity have been stated by other authors as important for attracting and retaining employees with autism (Roehrich et al., 2016). This is also congruent with reported barriers by adults with autism regarding lack of employer and collegial understanding of the condition, plus the need for workplace support (Griffith et al., 2012). Access to support may also benefit NT employees. There were many similarities in employment needs between those with autism and NT individuals, as determined by comparative statistics in the present research. For example, both groups considered it equally important to have a job where they are supported, communication is clear, that has good organization-person fit, i.e., matching their personality and skill set, with favorable pay and conditions. In this context, attending to the needs of employees with autism in the workplace could be considered good practice for all employees. If employers are aware that making changes will benefit both employees with autism and NT employees, it is possible that they may be more open to a neuro-diverse workforce.

## 5. Future directions and limitations

This study was based on self-reported responses to survey questions administered online. This method was selected given the difficulties those with autism experience in interpersonal interactions (American Psychiatric Association [APA], 2013). As such, autism diagnoses were not independently confirmed by a qualified professional, and there was no opportunity to prompt participants or encourage them to expand upon and further explain their responses.

Some of the quantitative analyses demonstrated reasonable effect sizes but were not statistically significant. This could have been attributed to the relatively small sample size available for quantitative analysis. It is possible that there were further enablers that were significantly more likely to occur for people with autism vs NT individuals than those revealed in the current study. Replication with a larger sample is recommended. This would also aid to achieve results that may be representative, and able to generalize to broader populations.

Further, this study did not directly explore the relationship between vocational enablers and stress or coping of individuals with autism. It would be useful for future research to test the COR and SE models as they apply to employees with autism in relation to social interaction at work, their well-being, and subsequent coping strategies. This is of particular interest considering the sample with autism were significantly more likely to have several diagnosed health conditions (compared to NT individuals) which could confound stress, well-being, and coping.

## 6. Conclusion

Successful employment for individuals with autism includes modification of the physical work environment specifically as it relates to accommodating sensory sensitivities. For example, attention paid to noise levels and artificial lighting. However, a holistic and sustained intervention targeting inclusive organizational cultures with a diversity climate may be the key to providing appropriate support for people with autism. For example, employing leaders with transformational qualities. Further, assistance for individuals with autism in the workplace may also require intervention on an individual level, given sensory sensitivities and social interaction may lead to personal distress. Overall, to address issues of human rights and workplace productivity for those with autism, there needs to be greater understanding of the importance of the person-environment fit, as well as policies and practices that reflect and address these issues.

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