

8-2021

Onboarding Autism Employees in Technology Industry

Heung-For Cheng

Follow this and additional works at: <https://digitalcommons.georgefox.edu/dbadmin>



Part of the [Disability Studies Commons](#), and the [Training and Development Commons](#)

Recommended Citation

Cheng, Heung-For, "Onboarding Autism Employees in Technology Industry" (2021). *Doctor of Business Administration (DBA)*. 45.

<https://digitalcommons.georgefox.edu/dbadmin/45>

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Digital Commons @ George Fox University. It has been accepted for inclusion in Doctor of Business Administration (DBA) by an authorized administrator of Digital Commons @ George Fox University. For more information, please contact arolfe@georgefox.edu.

Running header: ONBOARDING AUTISM EMPLOYEES IN TECHNOLOGY
INDUSTRY

Onboarding Autism Employees in Technology Industry

by

Heung-For Cheng

A dissertation submitted to the faculty of George Fox University in partial fulfillment of
the requirements for the degree of Doctor of Business Administration

Newberg, Oregon

August 20, 2021

Approved by:

Dr. Craig Johnson, Chair
Dr. Dirk Barram, Member
Dr. Kathy Milhauser, Member



**Dissertation Completion Approval
Doctor of Business Administration**

Student Name: For Cheng Student ID#: 1628225

Cohort #: 11 Concentration: MGMT

Project Title:

Onboarding Autism Employees in the Hi-Tech Industry

has been approved for the Doctor of Business Administration Program
at George Fox University as a dissertation for the DBA degree.


Approval Signatures:

 Date 5-17-21
Chair

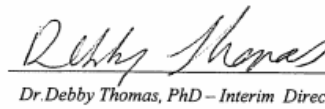
Dr. Craig Johnson, PhD.
Chair (print)

 Date 8/5/21
Member

Dr. Kathy Milhauser, DBA
Member (print)

 Date 8/5/21
Member

Dr. Dirk Barram, PhD.
Member (print)

 Date Aug 20, 2021
Dr. Debby Thomas, PhD - Interim Director, DBA Program

Abstract

The autism spectrum disorder (ASD) population experiences high unemployment, underemployment, and job turnover. Many people with autism have exceptional skills in areas, such as science, mathematics, and art. Companies in the technology industry are interested in tapping into the ASD talent pool because the industry cannot find enough qualified job applicants to meet the hiring demand. Few studies have focused on understanding how to help onboard ASD employees. Understanding the onboarding process can help technology firms retain ASD employees. In return, retaining this talent pool in the technology industry can continue to bring innovation. This research examined how a workplace circle of support for new ASD employees increases the success of their job onboarding. It attempts to answer the research question: “How can technology companies successfully onboard new ASD employees?”

This study used the qualitative case study method to investigate how a hi-tech manufacturing factory onboarded their ASD employees successfully. It identified a blueprint of the onboarding practice for ASD employees: (1) collaborating with an external agency with expertise, (2) encouraging self-disclosure through an official autism hiring program, (3) monitoring the performance of ASD employees closely, (4) connecting management with a personal circle of support, (5) paying special attention on the career development of ASD employees. The finding of this research contributes to the body of knowledge on the onboarding process for neurodiversity employees.

Keywords: *Asperger’s Syndrome, Autism, Autism Spectrum Disorder (ASD), Circle of Support, Disability, Diversity, Diversity Training, Inclusion, Job Coach, Manager,*

*Mentor, Neurodiversity, Neurotypical, Neuro-atypical, Onboarding, Retention, Support
Circle*

Acknowledgements

First, I want to acknowledge God who opened many doors and provided me endurance in this long dissertation journey. I also thank my son, Joshua, who has Asperger's Syndrome. He inspired me to research on topics that help the ASD population find employments and live independently. I am in debt to Dr. Justine Haigh, my previous dissertation committee chair and mentor, who shared her knowledge and experience in working with people with ASD, coached me in my research proposal, and encouraged me along the way. I wish her the best.

In addition, I want to recognize my Intel Fab28 colleagues and job coach in Israel: Yaara Alon, Noam Carmi, Roei Ezra, Talia Haas, Shmulik Nakav, and Guy Ofer. They graciously agreed to involve in this study to provide their valuable insights to advance the body of knowledge in the field of ASD employment. I also want to express my gratitude to my dissertation committee: Dr. Craig Johnson, who is my chair; Dr. Dirk Barram; and Dr. Kathy Milhauser. Without their guidance and encouragement, this study will not be possible. Thanks to my dear friend Dr. Susan Ostermann who offered her valuable ideas in my dissertation, and to my editor, Andrea Abernathy, who spent countless hours helping me edit my drafts in the final stages of the dissertation.

To my mentor, Skip Centioli; my good friends Joe Carter and Brian Forbes; my colleagues Garrett Clay and Priya Ramanathan; my DBA classmates Rob Van Cleef, Dwight Ham, and Gibran Zogbi; thanks for your belief in the importance of my study and your constant encouragement. It lightened my burden in this journey when you showed your care.

I want to thank my parents, Chung-Pung and Lai-Kuen, and my youngest daughter, Joyce for their patience with me and their encouragement. To my eldest daughter, Jami Trumbo, and my son-in-law, Sam Trumbo, thanks for your help in editing my drafts and bringing my first granddaughter, Abigail, to my life during this journey. Finally, this dissertation and all my accomplishments would not be possible without the support of my wife. Sandra, I thank you for your dedication to our family and your belief in me.

Table of Contents

Chapter 1 - Introduction	11
The Company of Study	12
Statement of the Research Problem	13
Research Questions	14
Definition of Terms	15
Limitations, and delimitations	16
Significance of the Study	18
Researcher's perspective	19
Chapter 2 – Literature Review	20
Onboarding Process	26
Workplace Circle of Support	29
Managers	30
Job Coaches	31
Mentors	34
Diversity Training in the Workplace	35
Neurodiversity Training	39
Chapter 3 - Method	43
Research Design and Rationale	43
Participants and Site	45

ONBOARDING AUTISM EMPLOYEES IN TECHNOLOGY INDUSTRY	8
Data Collection	46
Ethical Consideration	47
Qualitative Data Analysis	48
Chapter 4 - Research Results and Findings	50
Background	50
Research Study Findings	51
Theme 1: Partnership with outside agencies	51
Theme 2: Workplace circle of support of the employees with ASD	53
Theme 3: The onboarding challenges for employees with ASD	63
Job Matching Challenges	63
Communication Challenges	63
Life Skill Challenges	64
Working Environment Challenges	65
Mental Wellness Challenges	66
Performance Management and Career Development Challenges	67
Theme 4: Addressing onboarding challenges via workplace support circle and trainings	69
Job Matching	69
Communication	71
Life Skills	73

ONBOARDING AUTISM EMPLOYEES IN TECHNOLOGY INDUSTRY	9
Working Environment	73
Mental Wellness	75
Performance Management and Career Development	77
Theme 5: The employment outcomes of the Intel autism hiring program at Fab28	78
Analysis of the Themes	80
Self-Acceptance Training	81
Professional Team for Coaching	83
Motivation of the Support Circle	85
Interaction with Personal Life Support Circle	86
Performance Monitoring with Automation	87
Career Development for employees with ASD	88
Summary	89
Chapter 5 – Discussion and Conclusion	91
Discussion	91
Implications for Practice	93
Perspective on Autism Employment Research	99
Limitations of the Study	100
Future Research	101
Conclusion	103

ONBOARDING AUTISM EMPLOYEES IN TECHNOLOGY INDUSTRY	10
References	105
Appendix A: Human Subjects Review Committee Approval	118
Appendix B: Participant Information Sheet	119
Appendix C: Research Subject Informed Consent Form	122
Appendix D: Field Interview Questions	126

Chapter 1 - Introduction

According to the U.S. Department of Labor (U.S. Bureau of Labor Statistics, 2020), the U.S. unemployment rate of people with disabilities is twice as high as the unemployment rate of the U.S. general population. Among people with disabilities, people with autism have more difficulty in job seeking. According to Roux, Shattuck, Rast, Rava, and Anderson (2015), 42% of young adults with autism between age 20 and 22 have never worked for pay or attended college. Many ASD youth have demonstrated exceptional skills in mathematics, art, and music but are unemployed or underemployed (Marsa, 2016).

Currently, the technology industry has difficulty finding new qualified job applicants, so technology companies are interested in tapping into the talent pool of the autism population. For example, SAP, Microsoft, and Ernst & Young have created recruitment programs which hire employees with ASD to help innovate new products (SAP, 2013; Microsoft, 2015; Twaronite, 2019). As more technology companies are increasingly interested in candidates with autism, a new area of research has sprung up to focus on ASD job candidates' assessment program in recruitment (Flower, Hedley, Spoor, and Dissanayake, 2019). However, not many studies have been dedicated to the area of ASD employees' onboarding, which can impact the retention outcome of these employees. Understanding how to onboard ASD employees improves retention and benefits the technology industry through their continued employment. The purpose of this research is to find out how a technology company with an existing autism hiring program onboards their employees with ASD using the workplace circle of support.

The Company of Study

Intel Corporation is the world's largest semiconductor supplier in revenue in 2019 (IC Insights, 2019). The company creates computer chips that power over 80% of the world's personal computers (PCs), laptops, and servers (Alcorn, 2020). Globally, Intel has six semiconductor manufacturing fabrication (FAB) sites: Dalian in China; Oregon, Arizona, and New Mexico in the U.S.; Ireland; and Israel. Fabrication is the process of making computer chips using silicon wafers. The process deposits multiple layers of chemicals onto a wafer to create transistors and interconnections. Each processed wafer is then inspected and tested before it is divided into multiple computer chips for further testing and packaging. According to Intel, Defect Metrology, one wafer inspection procedure, detects errors and catches issues in silicon chip layout before the problems become more serious (Tuv et al., 2018). It allows manufacturers to take corrective actions early and to prevent waste of wafers. Training an operator to perform Defect Metrology for classifying defects usually takes six to nine months. Over time, an experienced operator can only maintain 70-85% accuracy because 80% of the operator's time is spent classifying the defect through repetitively looking at the computer imagery. This mundane task makes it difficult to motivate workers to achieve better precision.

In 2008, Intel opened its Fab28 fabrication facility to manufacture computer "brains," called Central Processing Units (CPUs), in Israel (Intel, n.d.). The factory is located in the city of Kiryat Gat, which is 42 miles southwest from the city of Jerusalem. In 2017, Intel Fab28 partnered with an Israel military program, called "*Roim Rachok*," which means "seeing into the distance," to recruit the military alumni with ASD into its Defect Metrology group (Sali, 2019). The Roim Rachok program was founded to help

youth with ASD live self-sufficient lives once they are discharged from the military. In this military program, the participants with ASD examine satellite imagery or perform software quality assurance using their visual, highly perceptive abilities, and their traits of pursuing precision and enjoying repetition. Once recruited, each soldier is assigned an occupational therapist and a psychotherapist who supports not only the soldier in fulfilling their duties, but also their colleagues as they work with people with ASD (Goldenberg, 2016). At Intel, these new employees recruited from the Roim Rachok program can utilize their imagery examination experience in military to review the images in the Defect Metrology with excellent accuracy in defect classification. In addition, their talents can release other neurotypical employees to perform less mundane tasks. Since 2017, Intel has hired 8 employees with ASD from the Roim Rachok program and onboarded them with 100% retention rate. Intel's autism hiring program at the Fab28 site makes an interesting study in understanding how to onboard ASD employees in the technology industry. This case study can address the lack of research examining onboarding ASD employees in the technology industry.

Statement of the Research Problem

The objective of this study is to investigate how the workplace circle of support can help technology companies onboard ASD employees. Multiple researchers (Berkell, 1987; Flower, Hedley, Spoor, & Dissanayake, 2019) have focused on the job placement and skills assessment of ASD employees. Findings from these studies have improved the unemployment and underemployment situation of ASD employees. However, ASD employees usually encounter difficulty keeping their jobs after hiring. For ASD employees, sensory and emotional sensitivity, executive functioning, time management,

and effective communication with their managers and their peers can create barriers and struggles in the workplace. The ASD population has a high job turnover rate. ASD individuals usually hold four to five jobs within a span of five years (Ohl et al., 2017). Since successful onboarding can lead to better employee retention (Snell, 2006), which could improve the rates of turnover and unemployment of ASD population, it is important to find out how to onboard ASD employees effectively after they are hired. Since people in the circle of support are the key contacts of ASD employees in workplace, this case study focuses on the impact of the managers, the job coaches, and the mentors on the onboarding success of ASD employees. The research also discusses other findings as they relate to the onboarding success of ASD employees.

Research Questions

This qualitative case study will focus on the primary research question:

RQ: How can technology companies successfully onboard new ASD employees?

The sub-questions explore the impact of ASD awareness training of the managers, the job coaches, and the mentors in the workplace circle of support on the onboarding process, and how these people can contribute to the success of the onboarding of ASD employees:

1. What strategies and specific activities should technology companies use to onboard new ASD employees?
2. Who are the people and what are their roles in the workplace circle of support for ASD employees?
3. What motivates individuals in the circle of support to help ASD employees and how do they improve the onboarding experience of ASD employees?

4. What ASD awareness trainings are offered to the employees of technology companies?
5. How do the ASD awareness trainings improve the knowledge and skills of the people in the workplace circle of support as they assist in the onboarding of ASD employees?

Definition of Terms

Asperger's Syndrome: Asperger's syndrome (AS) is a milder form of autism spectrum disorder (ASD). People with AS have normal and sometimes superior intelligence. However, they have various levels of difficulties in communication: not understanding social cues, having a hard time making friends, and being insensitive or rude. They may not take hints or understand metaphor easily. While talking, they may stand too close others or avoid eye contact. They may share or engage in extensive conversation on subjects of their own interests (Harvard Medical School, 2014).

Autism Spectrum Disorder (ASD): Autism spectrum disorder (ASD) is a developmental disorder that may lead to social, communication and behavioral challenges. People with ASD may communicate, behave, and learn in ways different from most other people. Their learning, thinking, and problem-solving abilities are on a spectrum ranging from talented to severely challenged. Some individuals with ASD need a lot of help in their daily lives and others need less (Centers for Disease Control and Prevention, 2020b).

Circle of support: the members in the circle of support are those who care about the person and commit to “pursue the vision by identifying and understanding the challenges and opportunities and working on strategies to overcome certain obstacles and

take advantage of opportunities” (Ducharme, Beeman, DeMarasse, & Ludlum, 1994, p. 348).

Job Coach: A job coach is a trainer who shares knowledge and skills with other in the workplace (Mitchell, 2001). Job coaches can be dedicated, experienced individuals or peers who have expert knowledge of the work environment and necessary, relevant job skills and who share with others.

Mentor: Mentoring is defined as a relationship engaged by two people, a mentor and a protégé (Fagenson, 1992). The protégé is also called the mentee. The mentor provides role modeling, support, guidance, and feedback to the protégé.

Neurodiversity: Neurodiversity is "a concept where neurological differences are to be recognized and respected as any other human variation. These differences can include those labeled with Dyspraxia, Dyslexia, Attention Deficit Hyperactivity Disorder, Dyscalculia, Autistic Spectrum, Tourette Syndrome, and others" (National Symposium on Neurodiversity at Syracuse University, 2011).

Neurotypical: Merriam-Webster dictionary defines neurotypical as someone who exhibits “characteristics of typical neurological development.”

Onboarding: Onboarding, also known as organizational socialization, is the process through which new employees learn the knowledge, skills, and behaviors they need to successfully move from being outsiders to being insiders of the organizations (Bauer & Erdogan, 2011).

Limitations, and delimitations

The first limitation of this case study is that it is a research study on the neurodiversity program of one organizational unit in tech industry, and the findings may

not generally apply to other technology companies with respect to ASD employees' onboarding. However, given that the neurodiversity hiring is a new phenomenon in the technology industry, companies are still searching for success factors for ASD employees' onboarding process. This study will shed light on what success looks like and how to make the onboarding process effective. The second limitation is that employees being interviewed may not feel comfortable sharing their experiences and insights freely if the research study findings end up being shared with the company's management team. Anonymity of interviewees should be considered when sharing raw data, such as quotes from employees in the final report. The third limitation is the possible bias of the researcher. The researcher currently is a manager at Intel and has a family member with Asperger's Syndrome. The family member has worked for several companies in the customer service sector within last two years.

The first delimitation of this study is that the interviewees may not be available for face-to-face interview due to the current Covid-19 work-from-home policy of Intel. Interviews will be conducted via online meetings or conference calls if face-to-face meetings are not possible. The second delimitation is that the focus of the study is on the workplace circle of support of ASD employees. The ASD employees may have the personal circles of support outside the work environment, which might include their job coaches, parents, friends, or mentors. Except for the job coach who is part of both workplace circle and personal circle of support, the other people in the personal circle will not be interviewed. However, it is acknowledged that the personal circles of support may also impact the outcome of onboarding of ASD employees. The third delimitation is that the managers, the job coaches, and the mentors involved in the study are only those

working closely with ASD employees of the organization unit of study. Although there are other ASD employees outside this organization unit in the company, they are not within the scope of this study.

Significance of the Study

According to the American Association on Intellectual and Developmental Disability (AAIDD, 2016), for the population of people with intellectual or developmental disabilities (IDD), there are two types of common living environments: institutional living, with segregated services, or community living, with supported employment. Institutional and segregated services provide support and services to people with IDD through institutional segregated communities. Community living and supported employment mean that people can live where they choose and earn a living wage. The U.S. spends more money per person with IDD on institutional and segregated services than on community living and supported employment. This means that societies can reduce support costs for people with IDD if more people with IDD, such as people with autism, participate in supported employment instead of consuming institutional and segregated services. In addition, Temple Grandin, a renowned animal scientist who has autism, describes being employed as “more than just a livelihood or paycheck; it is the key to a satisfying and productive life” (Grandin, Duffy, & Attwood, 2008, p. xiii). Helping the ASD population to seek employment, to onboard, to retain their jobs successfully, and to make progress in their careers not only reduces the financial burden on a society, but also improves the quality of life of people with ASD.

In addition, the ASD population experiences high unemployment (Roux, Shattuck, Rast, Rava, & Anderson, 2015) and underemployment (Roux et al., 2013).

However, many ASD people are exceptional in art, music, and math (Marsa, 2016). The technology industry has become more interested in neuro-diverse hiring due to the talent shortage. It is important to find out how to onboard ASD employees to reduce their turnover so that the unemployment and underemployment situation of the ASD population can be improved. Organizations can also benefit from low turnover rates, and the innovative ideas contributed by their ASD employees.

Researcher's perspective

The researcher for this study is a software engineering manager at Intel and has a family member with high functioning autism and is a mentor to a colleague who has Asperger's Syndrome. In addition, the researcher has helped an autism non-profit organization develop a curriculum to provide the awareness training to the managers of autism interns in the workplace. Recently, the researcher has been asked by an Intel business unit to help start an autism hiring pilot program in the U.S. These personal experiences may influence the researcher to form preconceived views of the impact of the workplace circle of support on autism employees' onboarding. Although these experiences and preconceived views may help guide the development of the research questions, readers should also be aware that they may also lead to possible biases toward certain findings.

Chapter 2 – Literature Review

The World Health Organization and World Bank (2011) reported that about 15% of the world's population, 1 billion people, live with disabilities and this number will likely increase. Baby boomers, those born between 1946 and 1964, are retiring in mass. People with disabilities form a large group of untapped human resource able to replace the gap in the workforce left by retiring baby boomers. However, this group is usually underutilized in the workforce because employers underrecognize their talent due to employers' perceptions of people with disabilities (Lengnick-Hall, Gaunt, & Kulkarni, 2008). As a result, the unemployment rate of the people with disabilities is twice the unemployment rate of the general population in the U.S. (U.S. Bureau of Labor Statistics, 2020). Even if they are hired, people with disabilities are usually underemployed compared with others without disabilities in the workforce (Harrington & Fogg, 2010). Another study (Bressler & Lacy, 1980) also shows that people with disabilities lag behind in performance measurements, namely, salaries. Among people with disabilities, those with ASD have more difficulty in finding jobs and retaining their employment (Roux, Shattuck, Rast, Rava, & Anderson, 2015; Ohl et al, 2017). Understanding how to help them gain employment, retain their jobs, and make progression in their careers is important so that society can fully utilize their talent in the workforce.

ASD is a neurodevelopmental disorder that impacts a person's ability to communicate and work with other people (Mayo Clinic, 2014). According Maenner et al. (2020), 1 in 54, or 1.8%, of children aged 8 years have ASD. Between 2000 and 2016, the number of children diagnosed with ASD in the U.S. increased 2.76 times, or a 6.6%

Compound Annual Growth Rate (Centers for Disease Control and Prevention, 2020a). As this increasing population of children transitions into adulthood, ASD youth have a hard time securing employment and maintaining their jobs. According to the U.S. Department of Labor (U.S. Bureau of Labor Statistics, 2020), in 2019 the 7.3% unemployment rate of the people with disabilities was more than twice that of the 3.5% unemployment rate of the general population in the U.S. Among people with disabilities, people with ASD have even more difficulty in finding a job. Roux, Shattuck, Rast, Rava, and Anderson (2015) found that between high school and their early 20s, only 58% of ASD youth ever hold paid employment. It is also difficult for them to keep their jobs for long. Youth diagnosed with Asperger's Syndrome, a type of mild ASD with average or above average intelligence but difficulty in communication, worked between an average of four to five different jobs in a five-year span (Ohl et al., 2017). In addition, for those who found employment, their wages were also the least among these disability groups (Roux et al., 2013).

It is important to understand the symptoms of ASD, examine the employment barriers for the ASD youth, and then address those barriers to help them transition into an independent life in society. Most people with ASD lack organization skills, and struggle with planning, as well as maintaining attention (Autism Speaks, 2019a). Also, according to the Centers for Disease Control and Prevention (2019), they struggle socially to interact with people because they can be obsessive in their own interests and do not have common interests as most neuro-typical people. They avoid eye-contact, are unable to recognize personal space boundaries, and have trouble understanding others' feelings or how to express their own feelings. People with autism have difficulties in communicating

with others as well. They do not easily understand jokes, sarcasm, or body language, including facial expressions and gestures. They may give unrelated answers to questions. They like to follow a routine. Changes in their daily routine can be upsetting to them.

These symptoms create five employment barriers for the ASD youth. The first barrier exists in the job seeking process. Since many ASD youth have difficulty in executive functioning in their brains, they find it difficult to organize and plan in their job searching activities. They do not know how to start the process, how to contact people, how to follow up with the contacts, and how to create a resume that includes relevant experiences and skills. Since they communicate and behave differently from neuro-typical people, they may not have the social skills to interact with the interviewers effectively in job interviews. In addition, since many ASD candidates may not be employed for long periods of time resulting in long gaps between jobs, it is difficult to account for their job history while job seeking (Ohl et al., 2017).

The second barrier is their inability to find and retain better paying jobs. According to Roux et al. (2013), the top five occupations of ASD youth employment were office and administrative support, transportation and materials moving, food preparation, building cleaning and maintenance, and production such as assembly and food processing. Over 70 percent of ASD youth working in these occupations are paid minimum wage. Their average earning wage is significantly lower than the average wages of other disability groups.

In interviews with six college degree holding adults who have Asperger's Syndrome, these adults experienced underemployment (Hurlbutt & Chalmers, 2004). They worked in low paying jobs that did not require the skills and training they had

obtained. These types of jobs had high turnover because it was not difficult to find replacement workers. As a result, these ASD people had trouble keeping their jobs. They attributed their job difficulties to the social demand in the work environment. Due to their struggles in communicating with neuro-typical managers and peers, they did not get along with other coworkers easily. This led to alienation in their jobs or loss of employment. (Ohl et al., 2017).

The third barrier for ASD employment is the prevalence of mental health issues in the ASD population. Eaves and Ho (2008) in their study of 48 young adults with autism, found that 77% have mental health issues including anxiety, stress, depression, and bipolar disorder. Stewart et al. (2006) discovered that as many as 34% of people with autism have depression. For employees with mental health illness, these issues can impact their work performance, including absences and accidents, which can cause a high rate of turnover (WHO, 2000). As a result, employees with mental health issues have difficulty in maintaining long-term employment. The unemployment rate among people receiving public mental health services in the general population is very high, approximately 80% (National Alliance on Mental Illness, 2014). It is not surprising that the combined factors of high unemployment among those with mental illness, and the high percentage of mental illness among people with ASD, result in a significantly higher rate of unemployment among the ASD population.

The fourth barrier to employment is the low rate of ASD youth attending college. Shuttuck et al. (2012) reported that only 35% of ASD youth attended college during their first six years after high school. Almost two-thirds of ASD youth never attend college. According to the U.S. Department of Education (2018), the higher the education level is

attained, the higher the chance of employment. In 2017, the employment rate of high school graduates, ages 25 to 34 years old, was only 72%, while the employment rate for people with some college education was 79%. People with a college degree attained an even higher employment rate of 86%. Given that many people with autism have no post-secondary education, this contributes to the low employment rate among the ASD population.

The fifth barrier to employment is that people with autism may be hesitant to disclose their ASD condition to their employers. Since people with autism are neuro-atypical and may not be easily accepted in the workplace, they fear that if they disclose their condition to others, there may be social stigma in the workplace (Krieger, Kinébanian, Proding, & Heigl, 2012). The stigma may prevent them from being hired or lead to termination of their current employment. However, the disclosure of their autistic condition can be beneficial for their job employment because they can receive job accommodations under the Americans with Disabilities Act (Hurlbutt & Chalmers, 2004). Without job accommodations, people with autism may not be able to easily maintain their employment.

Lately, some technology companies in the technology industry have become interested in hiring employees with high-functioning autism, specifically those with Asperger's Syndrome. This is due in part to the difficulty in finding talented candidates to fill their positions due to the low unemployment rate (Consumer Technology Association, 2018). Some companies are acknowledging the untapped talents of individuals with high functioning autism by starting to hire from this group. In 2013, the software company SAP announced an initiative to hire hundreds of people with autism

(SAP, 2013). In 2015, Microsoft also created a pilot program to hire people with autism (Microsoft, 2015).

As more companies become interested in neuro-diverse hiring, it is important to discern which types of jobs are well matched to ASD employees' unique attributes. Austin and Sonne (2014) described the attributes of ASD individuals as having the exceptional ability to pay attention to detail, enjoying repetitive activities, and liking solitary tasks. Grandin (1999) noted that ASD people lack short term memory but excel in long term memory. They can be good visual thinkers, or non-visual thinkers who are good with facts, numbers, and music. For visual thinkers, good job types may include video game design, web design, computer animation, drafting, commercial arts like advertising, equipment design, photography, etc. For non-visual thinkers, the right job types may include software testing where most people typically work alone doing repetitive tasks; accounting, which is ideal for people good with numbers; computer programming, which requires people to be good in math; and journalism, which requires good fact-finding skills.

In summary, the ASD population has difficulty finding and retaining employment due to their lower level of executive functioning, high turnover in low skill and low wage jobs, prevalence of mental illness, lack of higher education, and unwillingness to disclose their autism condition. It is important to help ASD employees develop their careers and improve their employment and retention rates through neurodiversity hiring and onboarding programs in the workplace.

For example, several of these employment barriers may be overcome by training the neuro-diverse candidates on job skills and the interview process, and by training the

neuro-typical managers and colleagues on how to interview and work ASD employees. SAP worked with an external human resource company to provide candidates with autism a five-week training course on the interview process, soft skills, and job training. Other employees in SAP also learned how to interact with their autistic colleagues (Che, 2016). Microsoft's Autism Hiring Program (Microsoft Global Diversity and Inclusion, 2019) uses a different interview format to select future employees with autism. Hiring managers are trained to understand autism and to create an inclusive workplace culture which welcomes potential employees with autism during the interview and after employment.

Once hired, the workplace circles of support of the employees with ASD are also important for the success of their onboarding and retention (Annabi et al., 2019). For example, the managers, the job coaches, and the mentors in the workplace circles of support can help new ASD employees transition into the new roles during onboarding and career progression. Through the careful design of the neurodiversity programs in the workplace, ASD talents can be recruited, retained, and developed throughout their careers in the workplace.

Onboarding Process

Onboarding, also known as organizational socialization, is the process whereby new employees learn the knowledge, skills, and behaviors they need to be successful to move from being outsiders to being insiders of the organizations (Bauer & Erdogan, 2011). Onboarding impacts the adjustment and effectiveness of new employees to perform new jobs. A successful onboarding process results in positive employee work

attitudes, increases in job satisfaction and organizational commitment, and improvement of employees' engagement, productivity, and retention (Snell, 2006).

Bauer and Erdogan (2011) examined the literature of onboarding research and presented a general model of socialization that includes three categories of factors which impact the adjustment of new employees in workplace. The first category consists of new employee characteristics. These characteristics come from their own background and personality traits. New employees with proactive personality traits engage actively in the workplace by asking clarifying questions at work. They also develop their social networks, which assist them to learn about the organizational culture. Their proactive personality traits help them adjust to their new work environment quickly through role clarity, work-group integration, and task mastery. In addition, extraverts, people who are open to new experiences, show easier adjustment in their new jobs.

The second category of onboarding factors relates to new employees' behaviors in the socialization process. Positive socialization behaviors include reading the company website and asking questions of their managers and peers about their jobs and the company's processes and priorities. Employees who actively seek information and feedback can increase their speed of adjustment.

The third category of factors is organizational effort on onboarding practices. A SHRM survey discovered that most companies provide few formal onboarding practices (SHRM, 2011). Almost half of the organizations report that the duration of their onboarding program is less than eight days. However, a study by Klein, Polin, and Sutton (2015) found that the longer the onboarding practices are, the better the socialization experience is. A formal orientation program enables new employees to understand the

company culture and connect them to their new roles and peers. New employees also feel welcomed in orientation programs. Recruitment events and job preview activities, such as previous internships, can also facilitate effective onboarding for new employees.

Organizations can also help new employees with onboarding and adjustment through pairing them with mentors as their guides in their workplace circles of support. A positive experience in adjustment leads to better employment outcomes in job satisfaction, commitment, performance, and retention.

Traditional onboarding processes focus on assimilating new employees into the organizational culture. Many socialization practices introduce new hires to organizational procedures, norms, and values. This approach downplays and suppresses the identities of the newcomers and eventually could cause psychological depletion (Cable, Gino, & Staats, 2013). Also, new employees may not fully understand the values of the companies, even if they appear to comply to the organizational norms. Blind compliance does not help improve employee engagement. The study develops a new approach, “personal identity socialization,” which can improve the onboarding experiences and produce positive, long-lasting effects for both organizations and employees. In this approach, companies encourage employees to identify their authentic strengths and ask them to apply their strengths to their new jobs. The new employees also have opportunities to introduce themselves and share with others the conditions in which they would be their “best self” in workplace. With this new approach, most new employees respond positively to this approach with a sense of purpose and motivation. They experience job satisfaction, lower stress, and less burnout. Employees who received the personal identity socialization approach in onboarding practices are less likely to quit

than those who received traditional onboarding practices. Recognizing the personal identities of new employees in the onboarding processes can lead to better retention.

Personal identity socialization is extremely important for the onboarding of neurodiverse employees, especially those with ASD. According to Annabi et al. (2019), traditional onboarding process would overwhelm new employees with ASD. In addition, neurotypical managers and peers may not know how to be inclusive and welcoming to employees with ASD. However, personal identity socialization approach allows people with ASD to match their individual strengths to the jobs and express their true self.

Organizations can also provide new hires necessary supports, such as job coaching during onboarding. Managers and peers should receive awareness training to gain knowledge and understanding of autism and how best to work with and support employees with ASD.

Workplace Circle of Support

Ducharme, Beeman, Demarasse, and Ludlum (1994) define the circle of support as those people who care about the person and commit to “pursue the vision by identifying and understanding the challenges and opportunities and working on strategies to overcome certain obstacles and take advantage of opportunities.” Annabi et al. (2019) describe the workplace circle of support of new ASD employees as those people who are involved in establishing a community to help the employee transition into new roles and carry out the organization’s career development activities. This circle consists of the manager, the team buddy, the employee resource groups (ERGs), the mentor, the career coach, and the job coach. The manager’s role is to help onboarding, support, retention, performance appraisal, and career development. The team buddy helps the new ASD

employee understand team practices and norms. Employee resource groups, such as disability employee groups, can provide social support and activities to help ASD employees to integrate into the company. The mentor is an experienced employee who meets with the employee regularly and introduces the employee to the organization culture and resources. The career coach guides the career advancement of the ASD employee. The job coach helps the ASD employee with personal issues, such as communication and time management. When there are performance issues, the job coach also acts as a liaison between the manager and the ASD employee.

Since the workplace circle of support can guide ASD employees to onboard, it is important to understand how this circle interacts with ASD employees to achieve the desirable outcomes during the onboarding process. Specifically, this research focuses on the neurodiversity training required for the workplace circle of support of ASD employees and how the managers, the job coaches, and the mentors can assist new ASD employees to onboard.

Managers

As U.S. workforce becomes more diverse, managers need to learn how to treat everyone inclusively to create a welcoming workplace. Their teams could have talents of different gender, ethnicity, sexual orientation, and neurodiverse thoughts. To promote diversity in their organization, managers should tailor recruiting practices to attract candidates with diverse talents (Bolman & Deal, 2013). For example, managers should select qualified candidates with diverse backgrounds and use a diverse panel to interview them. When diverse employees join the team, managers must behave inclusively in managing diverse employees. Moore, Hanson, and Maxey (2020) discovered the

attributes of inclusive managers of employees with disabilities. Courageous humility, the first attribute, is a core value of inclusive managers. They are not motivated by the pride of doing things “my way” or the fear of not knowing how to deal with employees with disabilities. They have a sincere interest in the wellness of their employees and their teams. The second attribute relates their leadership principles. They learn to understand the challenges, needs, and motivations of each individual team member. They desire to form an authentic relationship, which includes the roles of a friend and a coach. This relationship allows managers to build trust with each employee and to develop the employee’s career. The third attribute is that they take actions to solve problem. They adapt their policies and make workplace accommodations for employees who have special needs. For example, employees with autism may be hypersensitive to loud noise and bright light (Autism Speaks, 2019b). Inclusive managers might ask ASD employees about office environment needs and provide accommodation to them during the onboarding process. The proactive approach to ensure clear communication, tailoring attention to individual needs will create an environment for employees to flourish (Thompson & Miller, 2018).

Job Coaches

Job coaches are trainers who share knowledge and skills with other in the workplace (Michell, 2001). Job coaches can be dedicated, experienced individuals or peers who have mastered learning the work environment and who share their experiences with others. In order to be effective, there are seven principles that good job coaches should follow: preparing, setting the scene, going step-by-step, using clear

communication, both verbally and through body language, catching learners doing things well, providing feedback without destroying, and following up.

Preparing before coaching is the first principle guiding job coaches. They need to identify the coaching objectives and clear measures of success that can help individuals perform in workplace. They should also learn about the persons whom they will coach and adapt the coaching approach to suit those people. Second, job coaches need to set the scene for the learners. They should present an outline of the learning process and explain the context to help the learners understand the big picture and how it impacts others. They encourage the individuals being coached to ask questions and provide feedback in the process.

Third, during coaching job coaches should provide step-by-step instructions for each task and get confirmation from the learners that they understand each instructing step before moving to the next step. They should summarize the key learnings periodically and ask questions of the learners to test the knowledge and understanding. Fourth, job coaches should use the right language the learners can understand. They should use simple words in coaching and explain each technical term and acronym. They should ask open-ended questions, such as, “why do you think that this new way of doing this is better than the old way?” prompting learners to think. Job coaches should watch the body language of the learners and themselves. Sometimes learners may not understand but do not want to look stupid, and so they will not ask questions. However, their body language may communicate that they do not understand. Also, the coaches should not show their own frustration because the learners struggle to get the concepts. Their frustration can discourage the learning processes of the employees being coached.

With respect to providing feedback, the fifth principle is that job coaches should take every opportunity to praise the learners when they are doing something right.

Affirmation provides encouragement and a boost of confidence, communicating that they are progressing in the right direction to master whatever they are learning. The praises should be specific about what the learners are doing right. Job coaches help learners see positive feedback in the right perspective in term of their progress.

The sixth principle is to help employees understand areas needing improvement through their mistakes. How the job coach communicates the improvement feedback is important. Job coaches should ask questions rather than directly point out the errors. This will allow the learners to think. It is important to discover the root causes of the mistakes and emphasize the key lessons to avoid similar mistakes in the future. However, job coaches should not personalize the criticism and use sarcasm. They should not take over the control of the situation unless there are immediate concerns on safety.

The seventh and final principle is to follow up. Job coaches should provide opportunity for the employees to practice the new skills they have learned. Through practice, the learners will come across variations not being covered in previous coaching and ask additional questions. They may also repeat mistakes. Job coaches can use the practice sessions to answer those outlying questions and demonstrate how to avoid those common mistakes again.

These principles apply well to job coaches for people with mental disabilities and neurodiverse employees. Murakami (1999) discusses the responsibilities of job coaches who support individuals with mental disabilities. The coaches help the individuals' job seeking activities. The activities include identifying jobs and accompanying the

individuals to companies for interviews. After gaining employment, job coaches visit job sites regularly to observe the clients' situation. They negotiate with the companies for inclusive working conditions and help the companies understand the clients' situation and learn how best to supervise the clients. According to Annabi et al. (2019), companies with autism hiring program usually leverage job coaches funded by local or federal agencies to facilitate effective onboarding for new autism employees in the first 90 days. The job coaches help the new hires on work practices, time management, collaboration, and communication. They also coach the employees on financial responsibilities and facilitate discussions with the employee's personal-life support circle, such as with family members. They should be familiar with the neurodiverse conditions, such as ASD, know how to help neurodiverse employees understand the big picture. They also provide clear and detailed step-by-step instructions, ask open questions, and observe non-verbal cues. Job coaches for neurodiverse employees give positive feedback to encourage and improvement feedback to help correct mistakes and follow up to allow them to practice what they learn.

Mentors

Fagenson (1992) defines mentoring as a relationship engaged by two people, a mentor and a protégé. The protégé is also called the mentee. The mentor provides role modeling, support, guidance, and feedback to the protégé. In the workplace, the mentor is an experienced employee who is also in a position of power to bring opportunity to the protégé and visibility of protégé's accomplishments to others (Day & Allen, 2004). According to Kram (1983), a mentoring relationship helps develop the protégé's career and the psychosocial functions of both the mentor and the protégé.

Coleman and Adams (2018) recommended employers assign a peer mentor to each employee with ASD. The mentor should spend 5-10% of work time to help the ASD employee. Mentoring can help the ASD employee learn important job and social skills (Grandin, Duffy, & Attwood, 2008), and goal setting (Milton, Sims, Dawkins, Martin, & Mills, 2017). The mentor can introduce them to organization's culture (Annabi et al., 2019). Since the ASD employee may also experience limited social integration and friendship in general, mentoring can assist them to build friendships, social networks, and self-advocacy skills in workplace (Lindsay & Munson, 2018). The peer mentor regularly provides feedback to the ASD employee to help them develop skills in solving workplace issues that may lead to job turnover. The need for help may gradually reduce; however, the mentoring relationship should continue long-term since the ASD employee will need help in social and communication interactions as problems arise in workplace. Although the responsibilities of the job coach and the peer mentor may overlap, the mentor will have advantages over the job coach. For example, the peer mentor is always onsite and can help address any issue rapidly. Also, the mentor possesses more job and social knowledge that may be useful for the ASD employee.

Diversity Training in the Workplace

Diversity is defined as “the infinite range of individuals' unique attributes and experiences, such as ethnicity, gender, age and disability” by the United States Department of Labor (n.d.). In the United States, diversity in the workforce is growing quickly. Between 2010 and 2015, racial and ethnic diversity in the workforce increased from 19 percent to 34 percent (U.S. Bureau of Labor Statistics, 2011, 2016). One reason that U.S. companies hire more diverse workers is their desire to expand the reach of their

products into new markets. For example, banks in the U.S. need to hire more Hispanic employees to serve the increasing Hispanic population (Catalyst Consulting Group, 2014). Another reason for diverse hiring is that there may not be enough skilled local workers available (Soergel, 2016). In the technology industry, when companies cannot find enough skilled engineers domestically, they tend to hire foreign workers from India and China, and then help them to apply for permanent residency (Wolla, 2014). Finally, diversity hiring in the U.S. is being driven by supply. The U.S. population is becoming more diverse. Between 2010 and 2015, U.S. ethnic diversity increased by 1.2 percent (United States Census Bureau, 2016). As a result, U.S. companies will find more diverse applicants responding to their job posting. It is important to understand how diversity training evolves in the workplace.

According to Anand and Winters (2008), corporate diversity training had four phases from 1964 to the late 2000s. The first phase was from mid-1960s to the early 1980s. Most trainings in this phase focused on providing knowledge of the law and the company's policy. In 1964, the U.S. Title VII of the Civil Rights Act of 1964 made it unlawful for companies of more than 15 employees "to fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, or national origin" (U.S. EEOC, n.d.). In response to the discrimination suits being filed with the Equal Employment Opportunity Commission (EEOC) under this legislation, companies involved in the suits were being ordered by the courts to provide mandatory trainings to all employees in anti-

discriminatory behavior. Other companies voluntarily provided such trainings to managers and employees to avoid the lawsuits and the negative publicity.

The second phase began in the mid-1980s. This phase emphasized worker assimilation and the improvement of working relationships among workers. In the 1980s, the rate of increase in racial and gender diversity in the workplace slowed down from the 1970s. Also, President Reagan's deregulation policy did not favor fine-grain business regulations to reduce discrimination. With less regulations from the government, some companies turned their attention to other areas, such as competition and quality. They defocused on compliance diversity training. Some provided the compliance training to managers only. Other companies started to focus on designing training to help women and unrepresented groups assimilate into the corporate culture (Fernandez, 1981, p288).

The third phase was from the mid-1990s to the late 2000s. The training addressed how to leverage diversity to enhance business performance. In 1987, the Hudson Institute, an economic think tank, released a report called Workforce 2000 (Johnston, Packer, & United States Department of Labor, 1987). In this report, it indicated the demographic makeup of the "net additions" into the future workforce would mainly be composed of more women and ethnic minorities since baby boomers would retire, more immigrants would arrive, and more women and minority groups would join the workforce. This finding created a major shift in thinking of the future workforce composition. This shift helped introduce the term "workforce diversity" into the business world. Diversity training in 1990s focused on fostering awareness and sensitivity to each other's differences and needs. However, with limited internal training expertise, many Fortune 500 companies used external diversity training firms to train their employees.

Due to the high cost, most trainings were short and without follow-up. After the training, employees returned to their work environment without knowing how the trainings could make a difference in the workplace (Anand & Winters, 2008, p361).

Since the late 2000s, research has indicated that a diverse workforce can bring better business results when employees feel psychologically safe to provide their input to make better decisions. For example, Herring (2009) showed that firms with a high level of racial diversity generated 15 times more sales than those with a low level of diversity. Dezso and Ross (2012) found that firms with females in executive management teams increased their value by about \$44 million in S&P 1500 corporations.

Diversity trainings in fourth phase have focused on enabling learners to value and utilize differences in the workplace to make better business decisions. The training curricula offered classes on understanding gender differences, sexual orientation, multi-generation management, and cultural differences. In addition, many trainings also addressed unconscious biases in the workplace that would hinder inclusion (Nelson, 2017). When unconscious biases occur in the workplace, the people being treated unfairly will experience social pain. The situation may cause people not to contribute their ideas. Trainings on unconscious biases usually categorize different biases into certain groups in the workplace and comes up with different mitigation strategies to address the biases (Halvorson and Rock, 2015).

The U.S. workforce has become more diverse. Companies have increased their focus on training their employees on diversity. The current phase of diversity trainings emphasizes worker inclusion that values each employee's contribution of ideas that can help make better business decisions and deliver greater business results. One type of

diversity in workplace is neurodiversity. As more companies in the technology industry hire neurodiverse employees, such as people with ASD, they begin to focus on offering different neurodiversity trainings to both their neurotypical employees and to their neurodiverse employees.

Neurodiversity Training

Neurodiversity is "a concept where neurological differences are to be recognized and respected as any other human variation. These differences can include those labeled with dyspraxia, dyslexia, attention deficit hyperactivity disorder, dyscalculia, autistic spectrum, Tourette syndrome, and others" (National Symposium on Neurodiversity at Syracuse University, 2011). Neurodiversity hiring is not a common practice. For example, the ASD youth population has high unemployment (Roux, Shattuck, Rast, Rava, & Anderson, 2015). Hillier, Fish, Cloppert, and Beversdorf (2007) report that social interaction issues hinder adults with autism from gaining employment. These issues include the inability to establish age-appropriate relationships with peers and the lack of understanding of social cues to engage in social situations. These challenges result in social isolation and vocational failure for people with ASD. Research supports the use of behavioral intervention techniques to improve workplace skills for people with ASD (Hedley et al., 2017). Workplace training programs, such as social behavior training and communication skill training can be effective to help adults with ASD who have mild to moderate intellectual disability improve their social interaction (Liu et al., 2013). In the workplace social behavior training, participants learn how to work with co-workers, query supervisors for information, and respond to feedback. In communication skill training, employees with ASD constantly engage in social interaction and receive

immediate feedback on their interactions. Communication and interpersonal skills are important factors for successful employment (Hendricks & Wehman (2009). Teaching these important skills can foster a positive work experience. With appropriate training and education, people with ASD can integrate into the community and gain competitive employment. In addition, Hedley et al. (2017) indicated that it is important to train staff members who work closely with employees with ASD in order to build a supportive workplace.

In the last decade, the technology industry has started to recognize the talents of neurodiverse people and has begun establishing neurodiversity hiring programs. Both SAP (SAP, 2013) and Microsoft (Microsoft, 2015) announced initiatives to hire people with autism. However, there is not much understanding of how the technology industry integrates and supports the neurodiverse workforce. Recently, Loiacono and Ren (2018) found that recruitment engagement with neurodiverse employees and managerial support are two critical practices for successfully building a neurodiverse workforce. In the area of recruitment, the study highlights the importance of adjustments in the recruitment of neurodiverse candidates. Many of these candidates have applied to other jobs, but have been screened out before. A neurodiversity hiring program can provide a one-week training to the candidates before the interview process. In pre-interview training, they can participate in informal teams onsite and receive feedback. In addition, neurodiverse applicants participate in a mock-interview to gain experience before the formal interview. These adjusted recruitment practices increase their chances of being hired.

In addition to adjusting the recruitment practices, technology companies need to train managers on how to interact with neurodiverse employees in order to support their

careers, as managers often lack knowledge of the characteristics and needs of these workers. For example, managers need to be aware that many ASD employees are hypersensitive to loud noise and bright lighting (Autism Speaks, 2019b). They need to provide accommodations for the office arrangements for ASD employees. Managers can be trained by third-party specialists on neurodiversity. The training sessions can provide a safe environment for managers to ask uncomfortable questions and seek help. These training sessions can remove any wrong assumptions from managers who may feel awkward asking questions in the beginning. Loiacono and Ren (2018) indicated that those managers, after being trained, become more inclusive in how they communicate with all employees because they improve their communication skills in general. Another way that managers can be trained in neurodiversity is through interacting with the neurodiverse employees directly. Companies can set up open forums to facilitate bidirectional communication. Neurodiverse employees can discuss their struggles in the workplace and seek help and the managers can better understand and support the neurodiverse employees.

Also, it is also important to run workshops on unconscious bias and hidden disabilities for all employees so that they gain knowledge on diversity and lessen their fear of working with neurodiverse people. Austin and Pisano (2017) recommend short training sessions to help existing employees learn what to expect from their neurodiverse peers. For example, HPE's autism hiring program, Dandelion, found that training for the general workplace and coworkers is a key element in successfully implementing an autism hiring program (Pisano & Austin, 2016). Managers and coworkers of neurodiverse employees need to be aware of how to work with them. This autism

awareness training needs to be reinforced and repeated due to staff turnover. E-training tools, such as the online neurodiversity training from Uptimize used by Microsoft and JP Morgan Chase, can improve integration and workplace education (Fieldhouse, 2017). In addition, managers should get more extensive training to learn about the resources for supporting their neurodiverse employees (Austin & Pisano, 2017).

In summary, the neurodiverse population has high unemployment. Behavioral intervention techniques, such as social behavioral and communication skill training, help this group of people have successful employment. More technology firms are starting neurodiversity hiring programs. Some studies have indicated that it is important to train neurodiverse employees, their colleagues, and their support circle at work, such as managers and buddies. For neurodiverse employees, they need to be trained on soft skills so that they know how to interview successfully to get hired. For their circle of support, it is important to provide awareness training for people in the circle to understand the neurodiverse conditions in order to help these employees accordingly. The effectiveness of their help can directly impact the success of neurodiverse employees' integration into the workplace. For colleagues, they also need awareness training to know how to daily work with neurodiverse employees.

Chapter 3 - Method

Research Design and Rationale

Jones and Kottler (2005, p. 79) define research design as the procedures of the research that can legitimately answer the research questions. The procedures need to be described in enough detail to allow informed judgement about their appropriateness. They should be relevant for the research questions. A qualitative research design makes use of naturalistic inquiry to observe behaviors in natural settings. According to Beuving and Vries (2015, p. 15), naturalistic inquiry is studying "people in ordinary circumstances by ordinary means." The researcher observes and investigates the phenomena of interest as they occur naturally without external control. This allows in-depth understanding of the phenomena.

The case study method is one of the qualitative research designs. Creswell (2007) described the case study as a method to be used to investigate an issue through one or a few cases within a bounded system like a setting or a context. The need for case studies arises when the types of research questions focus on answering "how" and "why" (Yin, 2009). These questions try to discover the operational links which explain the phenomena. In addition, the case study is used to examine contemporary events when the relevant behaviors cannot be controlled.

In this research study, the autism hiring programs in the technology industry is the contemporary phenomenon being examined. The research question is to discover how the workplace circle of support in the computer chip manufacturing factory Fab28 of Intel Corporation, a hi-tech company, helps new ASD employees onboard. Since the research question involves "how," the research is an explanatory study. The unit of analysis is the

Intel Fab28, which focus on recruiting ASD employees. This unit designs their workplace environment to help ASD employees excel. The study requires the qualitative understanding of the operation links in this unit over the time boundary of the onboarding process of ASD employees, which is usually the first two and half years after being hired. The spatial boundary is the Fab28 in Israel. The component boundary is the participants in the study. The participants are the ASD employees, their managers, their job coaches, and their supervisors who mentor the employees in the workplace circle of support of the ASD employees in this unit.

Yin (2009) identified several rationales for the use of single-case study. One reason is that the single case represents an extreme case or a unique case. The case happens rarely and is worth studying. Since neurodiversity hiring is a new phenomenon and there are only few examples with onboarding process for ASD employees in technology industry, it is appropriate to use a single-case method in this case study. It is important to consider validity and the reliability in a case study. Creswell (2014) defined the qualitative validity as “determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers.” For reliability, since qualitative research is focused on meaning and interpretation in situations that are unique and context bound, its measurement of reliability cannot be the consistency but rather the dependability of the study.

This qualitative case study addressed the validity through triangulation. It collected data from multiple sources of evidence: documents and interviews. Data from direct observations was also gathered. Multiple ASD employees, their managers, their job coaches, and their supervisors who mentor the ASD employees were also selected to

improve the credibility of the findings. Participants were asked to review the detailed descriptions to determine the accuracy of their accounts. Self-reflected biases of the researcher were discussed in the report. Discrepant information was identified. For reliability, field interview questions and operational steps to conduct the research were provided so that the procedure could be evaluated for dependability.

Snell (2006) mentioned that effective onboarding allows new team members to gain information to be productive quickly. Bauer and Erdogan (2011) described that the onboarding outcomes include performance and retention. Successful onboarding can lead to higher performance and higher retention. Although there may be other explanations for both productivity and retention, there are associations between onboarding and productivity and between onboarding and retention. This research used the onboarding outcomes of productivity and the retention as measurements of onboarding success.

Participants and Site

The research was conducted in the Fab28 manufacturing factory of Intel in Israel. This factory has recruited eight self-disclosed ASD employees. The study identified the sponsor manager, two ASD employees, the manager of these employees, one job coach, and one supervisor who mentors these ASD employees as participants. These participants play important roles in the workplace circle of support of ASD employees, helping them onboard into their new jobs.

The sponsor is the Fab28 area manager responsible for the Defect Metrology. She started working with Roim Rachok in 2017 to hire employees with ASD. The two ASD employees have joined Intel as technicians to perform defect classification tasks since 2018. They are managed by one of the managers in the sponsor's organization. The daily

work performance of these technicians is supervised by the shift supervisors. In addition, Roim Rachok has also assigned a job coach to coach these employees weekly in the workplace.

Data Collection

According to Yin (2009), case study evidence can be collected via six sources: documentation, archival records, interviews, direct observations, participant-observations, and physical artifacts. Evidence can come from documents, such as email correspondence, reports, public website information, or news clippings. In this case study, six one-on-one interviews were completed. Five interviews were conducted via virtual meetings using Microsoft Teams collaboration software and one interview was conducted using email correspondence because the job coach was not available for virtual interview via Teams. She provided her answers to the interviewing questions via email. In addition to the interviews, the researcher was invited to an internal Intel meeting as a direct observation participant where the sponsor presented the Intel autism hiring program at Fab28 to the Intel disability leadership council. This council guides Intel's decisions of disability hiring and integration. The sponsor's presentation materials were obtained for the data analysis.

In 2019, the founder of Roim Rachok also presented at the International Autism Conference. In her presentations, she highlighted how Roim Rachok recruited youth with ASD and trained them before placing them into Israel army. Some of these recruits eventually joined Intel after completing their military service. Those presentations were recorded and available publicly. As a result, these publicly available recordings were also used to generate transcripts in the data collection process. The data collection and data

analysis processes yielded rich findings that address the research question and the sub-questions of how Intel Fab28 was able to onboard their employees with ASD.

To prepare for one-on-one interviews, the researcher utilized the research questions and the literature reviews of the roles of managers, the roles of job coach, the roles of mentors, diversity training, and onboarding process to generate a list of guided field questions (see appendix A) in the interviews. The researcher took detailed notes of conversations and observations. Interviews or direct observations were conducted in virtual meetings because the Covid-19 pandemic prevented face-to-face meetings. The notes of interviews and direct observations were transcribed. The identities of the participants were anonymized by assigning a pseudonym to each participant.

Ethical Consideration

Rubin and Rubin (2012) discussed the ethical responsibility toward the interviewees in research. When interviewees agree to openly provide information in a study, the expectation is that the researcher behaves ethically. In this research, the researcher showed respect to the interviewees. The research purpose and interview questions have been provided to all interviewees before they agreed to participate. Before interviewing, each interviewee signed a consent form to agree on being interviewed. Permission was obtained before each interview was recorded. After interviews were completed and transcribed, the researcher provided the transcripts to interviewees for reviewing. Interviewees were allowed to amend the information they provided in interviews. In a show of appreciation, the results of the study were made available to the interviewees.

The researcher protected interviewees by anonymizing their identities in the study. Also, the interviewing data were kept in a safe place and protected through password access for a minimum of 5 years. There was no deceit or pressure to get the information from interviewees. For instance, the researcher did not make promises when they could not be fulfilled. Also, interviewees were not pressured to provide information when they were not comfortable answering certain questions.

The researcher upheld the high ethical standards set by George Fox University and followed the ethical principles and guidelines laid out in the “Belmont Report” (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The “Protection of Human Subjects Initial Review Questionnaire” was submitted to the George Fox University’s Human Subjects Research Committee (HSRC) for review and approval before interviews began.

Qualitative Data Analysis

Following the approach of the qualitative data analysis process in Creswell (2014, p. 197), the data in this case study was analyzed as follows:

First, the fieldwork raw data was organized as soon as they were collected. These data consisted of written documents, videos, interview notes and recordings, and direct observation note. The sponsor has provided the presentation document and her internal blog of this autism hiring program. The videos were found on the internet. The interviews were recorded through the Microsoft Teams virtual meeting tool. The recordings were uploaded to the Microsoft Stream cloud tool, which provided the transcription feature. However, since the transcript file format is not readable, the researcher used a cloud tool in happyscribe.com to convert each interview transcript into a Microsoft Word document.

The direct observation notes were captured through the meeting minutes by the meeting host. These data were then sorted and stored electronically.

Second, the data and the transcripts were read and examined repeatedly so that the researcher gained a general sense of the data and reflected on its overall meaning.

Third, “in vivo” coding method was applied to the data in transcripts format. The researcher organized the data by grouping the text into chunks with special codes using the Nvivo software. The list of codes consisted of a predefined set of codes prior to conducting fieldwork and the new set of codes generated inductively from the data after fieldwork. The coding process required multiple rounds of examination of the data and refinements of the codes. The codes were given self-explanatory names. The data collection and coding process were conducted together. The coding process began as soon as each interview’s transcription was available. The process repeated until all interviews completed. The iterative nature of the process helped refine the codes used in the research.

Fourth, after analyzing the data through coding, descriptions of the settings, different categories, and themes were generated.

Fifth, the themes were then analyzed, and new findings were extracted.

Chapter 4 - Research Results and Findings

Background

The purpose of this bounded, single-case study was to discover how a technology company with an autism hiring program can onboard its employees with ASD.

Specifically, the study explored the following sub-questions:

1. What strategies and specific activities should technology companies use to onboard new ASD employees?
2. Who are the people and what are their roles in the workplace circle of support for ASD employees?
3. What motivates individuals in the circle of support to help ASD employees and how do they improve the onboarding experience of ASD employees?
4. What ASD awareness trainings are offered to the employees of technology companies?
5. How do the ASD awareness trainings improve the knowledge and skills of the people in the workplace circle of support as they assist in the onboarding of ASD employees?

The study interviewed the sponsor of the autism hiring program (Yanni), two employees with ASD (Nathan and George), their manager (Sam), their shift supervisor (Roy), and their job coach (Taylor). Through examining the workplace challenges that ASD employees encountered at the Fab28 site, several themes emerged.

Note that the names of the participants and the founder of the partnering external agency in this report are pseudonyms so that their identities can be protected.

Research Study Findings

Five themes were discovered through the data collection and data analysis processes:

1. Partnership with outside agencies.
2. The workplace circle of support of the employees with ASD.
3. The onboarding challenges for employees with ASD.
4. Addressing onboarding challenges via workplace support circle and trainings.
5. The employment outcomes of the Intel autism hiring program at Fab28.

Theme 1: Partnership with outside agencies

Intel Fab28 in Israel manufactures computer CPUs. In 2017, Intel Fab28 partnered with Roim Rachok, a non-profit organization, to recruit Israel military alumni with ASD into its Defect Metrology group. “Roim Rachok” in Hebrew means “seeing into the distance.” This organization was founded in 2013 to help youth with ASD integrate into Israel military service. After about three years of military service, Roim Rachok helps them transition to live a self-sufficient life with employment in society. Eva, the founder of the organization, described the vision,

[We] provide young adults on the autistic spectrum an opportunity to enhance their strength in core professions, contributing to themselves and to society in a meaningful way. And our goal was to include them in military service, but not just, you know, folding uniforms in some warehouse or doing very simple tasks. We wanted core professions that will utilize their strengths and their specific characteristics in needed professions.

Roim Rachok enrolls youth with ASD and trains them in professional skills as well as soft skills. The training course lasts for three months. Each week, military commanders come to the class to conduct different technical trainings while an

occupational therapist, a speech therapist, a psychotherapist, and a yoga teacher train the recruits on relaxation and soft skills. After the three-month training, if they are selected to serve, they join the military for about three years. While serving in the military, these recruits are responsible for examining satellite imagery or performing software quality assurance testing using their highly perceptive abilities and their traits of pursuing precision and enjoying repetition. In the military they continue to receive help from the occupational therapists, the speech therapists, and the psychotherapists provided through Roim Rachok. The occupational therapists coach the youth on using public transportation to work, caring for their hygiene, managing their money, behaving properly in the workplace, as well as other occupationally related areas. The therapists are also in charge of their work skills, such as their time management, and their executive functions and sensory issues. The speech therapists help strengthen their communication skills. For example, many of the youth with ASD might not know how to ask for help. When they encounter work issues, they might stare at their computers without saying anything. The speech therapists assist with their daily communication skills and social interactions, such as participating in a conversation, asking for help, developing friendships, etc. The psychotherapists help ASD youth with their emotional expression, such as how they felt in certain situations and how they should express themselves in different situations. The psychotherapists also help them modulate their emotions, keep calm, and handle their anxiety, depression, and obsession.

In September 2017, the Intel Fab28 and Roim Rachok started to engage. Intel needed talented workers to grow the business while Roim Rachok was seeking civilian employment for their program graduates completing their military service. In February

2018, seven military graduates with ASD, with their parents, visited Fab28 to learn about Intel's work environment. Within 11 months, they joined Intel as full-time technicians. Since then, Fab28 has recruited a total of eight employees with ASD. At Intel, these new employees recruited from the Roim Rachok program utilized their imagery examination military experience to review the silicon wafer images in the Defect Metrology with excellent accuracy in defect classification. In addition, their talents released other neurotypical employees to perform less mundane tasks. According to Yanni, the Intel sponsor,

Our aim was to integrate people with disabilities within our work environment and assimilate them into our business needs in order to create a win-win situation.

In summary, the key finding of this theme answered the first research sub-question on the strategy of onboarding the employees with ASD. This theme highlighted the importance of the partnership with an external agency, which has expertise in identifying the potential candidates with ASD, providing technical and soft skills trainings to these candidates, matching the jobs with the right skillsets of the candidates, and offering on-going job coaching once they onboard. Partnering with a knowledgeable agency was the key strategy to successfully onboard the employees with ASD.

Theme 2: Workplace circle of support of the employees with ASD

At Intel Fab28, after the employees with ASD had been hired, the workplace circle of support was created to help their onboarding and continued integration. This workplace circle of support consisted of the hiring sponsor, the manager of the employees with ASD, the shift supervisors, the buddy mentor, and the job coach.

- The employees with ASD: At the center of the circle of support were the employees with ASD. Nathan and George, the two employees with ASD in this study, came from different backgrounds.
 - Nathan is 24 years old. After graduating from high school, Nathan joined the Israel military through the Roim Rachok program. Through the Intel autism hiring program, he came to work at Intel in 2018. Nathan has high functioning autism. He lives with his parents and his sister. He is very outgoing. He likes video games, such as the “Super Mario” game. He enjoys talking to people, especially his friends. In the beginning of working from home due to Covid-19, Nathan experienced loneliness but has slowly adjusted to the situation with help from his friends, as he reflected,

When I first started working from home, it was very sad ... because it's being alone, separated from everyone. And not enjoying the Fab facilities and togetherness. Now I am getting very well. Almost a year working from home. When I finish my workday, I [now] go down from my home to visit some friends.

He plans to attend college one day. He took the SAT college entrance examination and got very good scores. He wants to be an engineer in the future. In 2019, when then Intel-CEO Bob Swan visited Intel Fab28, he met with the employees with ASD. Nathan took a picture with the CEO. He was excited and wrote the following poem to celebrate Bob Swan's visit,

I feel I won
To speak to Bob Swan

That leads Intel Corporation
And visiting today our great holy nation
Welcome to Kiryat Gat, the city of light
To Fab28 that works day and night
The Fab that works with a lot of power
The pleasure to host you is always ours!

- George is another employee with ASD. He is 29 years old. George was born in the U.S.A. He has a twin brother. While he has high functioning autism, his brother with ASD needs helps in his daily life. When George was very young, his father, who was an Israel citizen, moved back with his family from California to Israel for a job offer. Similar to Nathan, after he graduated from high school, George joined the Israel military through the Roim Rachok program. After serving the army, he completed his college education. Then he was hired as a technician at Intel in 2018. He lives in his own apartment. His best friend is Nathan. George has a quiet personality. He recognizes himself as being shy and wants to overcome his fear of talking to people,

I think that I am just a little bit of shy to talk to them. But I'll try and raise my own courage to talk to them.

- The hiring sponsor: Yanni, the Intel sponsor for the autism hiring program at Fab28, is the Fab28 Defect Metrology area manager in Israel and has been with Intel for 22 years. She explained how the autism hiring idea came about,

I was participating in a in a technical course, a managerial course. Everyone had to pick a project to go with his [or her] product. So, this was a project that I thought about. Actually, I told myself that

there was no way [that] the Israeli army could hire people on the autistic spectrum and Intel could not do it. Intel should do this as well.

In 2017, Yanni worked with Roim Rachok to sponsor the Intel Israel autism hiring program and to employ the young adults with ASD who graduated from the Israel Defense Force (IDF). Between 2018 and 2019, the program recruited and successfully retained eight technicians with high-function autism to perform defect classification work at Fab28. The program also helped recruit five more employees for other Intel Israel organizations, such as Intel Design Center and Intel Sports. Yanni was selected as the company's "Inclusion Role Model" in March 2021 for championing the first Intel autism hiring program. She described her personal dream as a desire to look for more meaning beyond the day-to-day routine,

This dream provides a great satisfaction that I can experience alongside the difficulties and challenges at work... The greatest satisfaction [of hiring the employees with ASD] is to look into the eyes of the parents of these employees and understand that I actually put their children into the work circle and give them personal and financial security along with the opportunity to fit into a 'normal' framework outside the home or a special framework.

Yanni supports employees with ASD by working with Roim Rachok to hire employees with ASD and supervising the managers of the employees with ASD. She also periodically meets with these employees to help coach them.

- The manager: Sam is the manager reporting to Yanni. He manages 19 employees including three technicians with ASD. Sam started to work at

Intel in 2007 as a micro-contamination engineer. After two years, he transferred to Defect Metrology group as the Defect Metrology technical leader. Since then, he has served for five years as the manager of the equipment engineering group of Defect Metrology. Sam has a ten-year-old son with ASD. As a result, he understands how to work with the people with ASD. He mentioned how he got involved in this autism hiring program,

When the conversation around the project of disabling [hiring disabled] employees came, they asked me if I wanted to join the effort and if I would like to start to see how we could recruit people on the spectrum. And we started to go to the Roim Rachok office to see what's happening and how we could work together and what would be the process of getting new employees. After that I got first 3 employees.

Since then, Sam has managed these three employees for the past three years. When asked how he felt about managing the employees with ASD, he said,

I felt OK. For me, it was natural. It was not something that I would need to think about that too much. It was natural. I just wanted to make sure that we were creating a win-win situation to make sure that there would be a good situation for the autism employees and for other employees, to make sure that the atmosphere would be good, and everything would go smooth.

Sam supports his employees with ASD through daily conversations, providing performance feedback, and guiding their career development. Every workday, Sam meets with the employees with ASD as a group. Sometimes, Yanni and Taylor, the external job coach, may join the meetings. Sam described the daily meeting,

We are talking about work and about the day. Sometimes you know, they are technicians. They are not like engineers solving new issues. They work and can have full day without talking with someone. So, this is really good situation that they have opportunities to talk things out or with us. Sometimes, since I'm working from home, my children are coming to say 'Hello.' And my children really know them around, so it's nice.

Also, three times per year, he has performance feedback sessions with these employees. Sam also discusses the career development with the employees with ASD, such as the future areas for learning and growth during the feedback sessions.

- The supervisor: Roy is a shift supervisor of Defect Metrology at Fab28. He has worked at Intel for 14 years. He joined as a technician in Fab cleanroom but transferred to a position to improve the yield in Defect Metrology 11 years ago. After finishing his degree in software engineering two years ago, he was promoted to the group leader who supervises the technicians in one of the four shifts that cover round-the-clock factory operation. His shift has 13 technicians. Some technicians work on factory floor. Some process classification for defects. Because Roy's elder son has a disability in both ears, Roy had some understanding how to work with the employees with a disability, as he described,

I can't say I come from the same background [as ASD], but I know what disability on a person is.

Roy supervises the three technicians with ASD who report to Sam when they work in his shift hours. Reflecting how he felt in the beginning when these technicians with ASD joined his team, he indicated that he had

concerns initially when he had to supervisor the technicians with ASD, but the concerns quickly subsided:

I would tell you honestly that I was afraid in the beginning because I wasn't familiar with the autism and working with this kind of behaviors. And so, in the beginning, I was afraid. But very fast, when we got to know these persons, these three are first doing high quality because they are [with] high-function [autism]. So very fast, we got to know them and it was a smooth way to success.

Roy is responsible for assigning the technicians their daily tasks and ensuring the safety of their work environment, as well as the quality of their work. As Roy mentioned,

Safety is the first priority over the quality at Intel in my world...Safety at this time, like [what] you said that [people are] working from home, is mainly ergonomic...[We] always talk to the employees to see that they have a space they can work in peace and quiet, ergonomic station.

To monitor the quality of work, Roy uses a software program that can view the results of their defect classifications and the comments that they provide. He described,

I can see if the work is good, not good enough, not significantly enough quality. I can point out to them what I think it should be done.

When these technicians have work-related questions or communication issues with their peers, they would seek advice from Roy. Roy cares for his technicians. For example, before Covid-19 pandemic, he would invite Nathan to carpool to Intel in his car. During current Covid-19 pandemic, due to working from home, he was concerned about the mental wellness of the employees with ASD since they worked alone and could experience loneliness. He stated,

When they are lonely or alone, it's a problem. So, every time, we need to find the opportunity to work together. That's why this time in the Corona [Covid-19 situation], it is very hard on them.

- The buddy/mentor: The buddy mentor is also an important person who supports employees with ASD onboarding. At Fab28, every new employee is assigned with a buddy mentor. For a new employee with ASD, there is a dedicated engineer assigned to that new hire for the first 3 months following hiring. Sam described how the buddies help the employees with ASD,

We have [a] buddy for every new employee. But for them [employees with ASD], we took one engineer that really focus to be a buddy, like taking them to lunch at the beginning and making sure that they have everything: helping them shuttle; [making sure] everything to be safe; helping them with training. This was just for the beginning.

Taylor, the job coach, also elaborated on how the buddy mentor system works,

We also locate a person from the staffs who will be a mentor for the employee on the autism spectrum. This person [on the spectrum] will receive close guidance [from the mentor] and a professional development plan will be built [for the employee on the spectrum] at the beginning of the job. He has a training model that does not end with entering the role. I am in constant contact with the mentor and the employee on the spectrum throughout his period of work in the company.

Sam indicated that the buddies for these employees need to be helpful. He stated,

If you give someone to be their buddy, it needs to be someone that really wants to do something different, to do something good to others, and to understand that if you give something, you get something back.

- The job coach: Taylor is the external job coach for the employees with ASD at Fab28 and other Intel sites in Israel. She received a Bachelor of Arts degree in Art History from Tel Aviv University and a Bachelor of Occupational Therapy degree from the Ono Academic College in Israel. She has been working as an occupational therapist for 8 years. Early in her career, she worked with young children with autism in schools and Kindergarten. For the past 7 years, she has worked for Roim Rachok to find industry jobs for the IDF graduates with ASD. Taylor explained how the job matching process works for these graduates,

I get a request to hire our graduates. I check that the task is indeed suitable for a person on the spectrum and check that there are no tasks that require a lot of communication with customers, for example. The position should address the strengths of people on the spectrum. Once the professional task has been found, I locate a graduate of the program who has the appropriate professional experience and is also appropriate for the work environment. Once a suitable candidate has been found, we will conduct an introductory interview with the receiving manager as well as a professional test that will show the potential.

In addition, she regularly meets with employees with ASD, their managers, and their peers in their work environment. She provides the initial ASD awareness training to the coworkers of the employees with ASD, coaches these employees, and helps resolve their personal issues in the workplace. Taylor stated,

I come to an hour and a half training for all the staffs who work with the person on the spectrum This training aims to erase stigmas and give real and reliable information on how to work with a person on the autism spectrum... In the times before the appearance of Covid-19, I would physically come to the factory in Kiryat Gat [Fab28 location] and meet with the workers on the spectrum for personal conversations as well as with their managers

and mentors. Today I perform the training by phone and in video calls on WEBX [a virtual meeting application]

Taylor helps the employees with ASD in many work-related areas, such as time management and communication. As she mentioned,

I take care of all areas related to professional work and the ability to work independently as well. They do include areas of time management, task management, communication with team members, learning new professional tasks and more.

Taylor enjoys working with people with ASD because she wants to help people with disability to live independently. She explained,

I love the meaning that comes from being able to help a person on the spectrum realize their potential and live an independent and full life.

In conclusion, this theme explored the workplace circle of support for the employees with ASD at Intel Fab28. The circle consisted of the sponsor of the autism hiring program, the manager of the employees with ASD, the shift supervisors who oversaw their daily tasks, the buddy mentor who helped with their onboarding needs in the first 3 months, and the external job coach who guided them on working with colleagues and handling other personal issues involved in workplace. This theme answered the research sub-questions 2 and 3 and identified who those people were, what roles they played to support the employees with ASD, and what their motivations were. The next two themes discovered the onboarding challenges of these employees and how the workplace circle of support and different trainings helped the onboarding experiences of these employees.

Theme 3: The onboarding challenges for employees with ASD

The employees with ASD could encounter many types of onboarding challenges in a new job. They might be placed in positions that do not match their technical skills. They might also face challenges in communication with their neurotypical colleagues. In addition, they might have life skill challenges in managing time and money, working environment challenges due to their sensory issues, mental wellness challenges when they work alone, such as the Covid-19 working from home situation. Finally, they might come across job performance and career development challenges that require management's attention and help.

Job Matching Challenges

It was important for an organization to match the employees with ASD with the jobs that could utilize their skills. According to Taylor, the job coach,

The key to success [of onboarding employees with ASD] is finding the most suitable candidate who is able to perform the professional tasks in the best way.

Sometimes, companies hired people with ASD to jobs without matching their skillsets. Instead, they hired them to meet some government regulations for disability hiring. As Sam, the manager, indicated,

It's not that you bring something to someone to work because you need to--- fulfill a [quota] situation... You need to make sure that they have meaningful work and a win-win situation that they are really productive to the company.

Communication Challenges

Some employees with ASD might not communicate much verbally. Sometimes, the manager might give work instruction to the employees but might not get the verbal confirmation if the employees understand the instruction clearly. This might impact the

performance of the employees if they did not fully understand what needed to be accomplished in their work. Sam, the manager, mentioned,

If you spoke with George, I'm sure that you saw that with George. It is more difficult [to talk to him] because of less verbal description [from George]. And sometimes, he doesn't really understand immediately what you're asking.

George was aware of this challenge and tried hard to overcome it. He stated,

I am just a little bit of shy to talk to [other people]. But I'll try and raise my own courage to talk to them.

Some other coworkers might not have the patience to communicate with them due to their neurodiverse thinking. Roy, the shift supervisor, mentioned that some people in the shift showed less patience than others. This might cause misunderstanding and generate frustration in the employees with ASD at work.

Life Skill Challenges

There were some life skills that the employees with ASD needed to master in order to be successful in workplace. First, they needed to know how to take public transportation to workplace. Most employees with ASD at Intel Fab28 relied on public transportation to go to work. Taking public transportation alone could be a big challenge for them. They might get lost in new places. They might not know how to handle the situation when the bus came late or when they needed to transfer from one bus to another bus. If they took the company's shuttle, they would need to know which shuttle to take.

According to Sam,

Because usually the new employees are coming with the shuttle to our facility, so there are approximately 50 buses. Each bus needs to go to a different city, so they need to know which bus to take to go home...At the beginning, with George, there were some issues but [they were] really minor issues. It was like he didn't understand where the station was next to his home.

In addition, they might need help with time and money management. For example, when they were taking a break, employees with ASD might not know how long they should be away from their jobs. Yanni mentioned that sometimes, they did not know how long to take their lunch break. Also, money management might be a concern. On pay days, they each received a paycheck with a significant amount of money. They might not have the skills to manage this amount of money properly. Their spending decisions might impact their life and work performance. As Sam indicated,

We had one situation that one of them was really spending a lot of money when he started to work. They are getting normal salary. They are not getting something special or some reduction in salary. They're getting their salaries like other employees and it's a lot of money. They do not always know what to do with this money. We realized that one of them started to spend a lot of money in the web to buy games or stuffs like that, spend money on video games.

Working Environment Challenges

Employees with ASD may struggle if their working environment changes. For example, for manufacturing technicians at Intel, their shift hours might change from one week to another week. Sam mentioned,

[neurotypical employees] are working day and night shifts [including the] need of weekend.

The constant change of work hours might not help them to perform in their jobs. Also, sometimes they might not easily adjust to tasks change. For example, Nathan indicated,

When I started working, there was only [the manufacturing process] 1274, so we took a lot of time. Sometimes after I started working, there was also [process]1272. And it was a shorter training of it. But it was a very complicated technology.

As a result, Nathan was struggling when his manager asked him to change his focus to support a new process technology.

In addition, employees with ASD might be sensitive to light and noise when they work in their offices. George raised the concern of noise at work and discussed how he resolved it,

Sometimes, there is a bit of pressure when I feel there are too much noise or too much of people at work. So, all I have to do now is to take some rest and get to some quiet places...At the end, I can calm down my pressure.

Mental Wellness Challenges

Employees with ASD often faced situations that could create a mental wellness challenge. The first situation is whether they could self-accept their own ASD condition. For example, some of these employees grew up in families where they did not talk about their ASD condition openly because their parents tried to avoid the stigma associated with ASD. According to Eva, who recruited those young adults with ASD before they joined Intel Fab28,

Those students who did not talk about the diagnosis were busy hiding, investing a lot of energy in constantly self-examining their behaviors. They avoided seeking help. They stayed away from the group. They were lonely and did not make social connections and they were unable to advocate for themselves.

Employees who hid their ASD condition from others would avoid social interaction with colleagues, fearing being stereotyped and rejected by their coworkers. The self-acceptance issue might lead to non-disclosure of their condition to their manager and peers. It also minimized their participation in social events in the workplace in order to avoid being noticed for their condition. As a result, the isolation can cause the feeling of loneliness.

The second situation is that they did not get the needed accommodations in the work environment. According to Taylor,

A person on the autism spectrum may have difficulties in aspects of sensory regulation, such as sensitivity, increased or hypersensitivity to noise, odors, tastes, temperature, etc. which may increase discomfort. The person may have anxiety and sometimes even a feeling of pain.

Without the accommodation, the workplace environment might cause them stress and anxiety and they might not know how to handle this situation.

The third challenge happens when colleagues lack the awareness and understanding of the autism traits and behaviors. The lack of knowledge can easily create misunderstanding that could cause the employees with ASD frustration. Nathan indicated that sometimes his peers had no patience and misinterpreted his intention,

If the people have no patience to know my real intentions, I leave him alone. And if the people have patience, I re-explain, so I try again until they understand.

During Covid-19, companies were concerned the mental wellness of their employees due to working from home and social isolation. For employees with ASD, since they are prone to mental wellness issues, such as loneliness and anxiety, working from home could be a difficult situation for them to manage. Nathan expressed,

When I first started working from home, it was very sad... because it's being alone, separated from everyone. And not enjoying the fab facilities and togetherness.

Performance Management and Career Development Challenges

In performance management, managers needed to regularly provide their employees both positive and improvement feedback. However, improvement feedback could be perceived as criticism by many employees. For employees with ASD, it might be difficult for them to receive improvement feedback because they might take feedback personally and might not know how to handle their negative feelings. As a result,

managers and supervisors might feel challenged when giving improvement feedback to these employees, as Roy mentioned,

Sometimes the feedback is not pleasant and it's not easy to give them. It's hard on yourself to give a hard feedback for someone who is not like any regular employee. I won't say easy for any other employee. But when we have something that we must do, we give them the feedback. So sometimes it's very difficult.

In the area of career development, since the employees with ASD performed well with mundane jobs, they might be assigned with same tasks repeatedly for a long time. In addition, they might struggle with complicated and ambiguous tasks, as Roy mentioned,

It's very hard [for them] to do other things [tasks]. For them, the other things are very difficult and very complicated. But it needs to be tested in time. I cannot be sure that it won't succeed.

These employees might view that their jobs as their permanent positions for the foreseeable future without thinking about how to develop their careers. Nathan admitted that his focus was on his current job when being asked about his career development,

We [my manager and I] talked about that [career development]. It takes time. But that's OK. I am patient and I will need to know to solve first all my own issues ... then maybe in the end, they will know that I can solve the biggest engineering issues. But you don't want to jump very far.

Supporting career development would require managers to specially design a career development and growth path for them.

In summary, the employees with ASD encounter many onboarding challenges in the areas of job skill matching, communication, life skills, working environment, mental wellness, performance, and career development. The findings of this theme provided a clear understanding on their daily challenges in workplace. The next theme explored how the workplace circle of support and the different trainings help to address these challenges.

Theme 4: Addressing onboarding challenges via workplace support circle and trainings

Workplace support circles and autism training help address the above onboarding challenges effectively:

Job Matching

Intel Fab28 overcame the challenge of job matching by working with Roim Rachok, which had worked with the young adults with ASD already. This non-profit organization had a good understanding of their abilities before matching them to the jobs that they could perform well at Intel. According to Eva, people with ASD might possess the following traits that could help them excel in certain job types:

- **Consistent and Repetitive:** People with ASD like consistency. Jobs that require people to consistently perform the same tasks repetitively can leverage their strengths. They do not feel bored and can maintain the same level of accuracy and quality compared to neurotypical workers. Examples of jobs that can utilize this trait are software testing and defect classification. Sam stated,

I think that they're really good on the repetitive work. They are quite accurate on their repetitive work, and usually they don't get bored in repetitive work.

Nathan conveyed the same sentiment with his own experience as an employee with ASD,

Every day, during the workday, I get the quantity of a lot to classify. Sometimes it's a very huge amount and sometimes it is quiet and nothing. It is consistent, you know exactly what to do.

- Motor skills: Some people with ASD may not have strong cognitive skills but may excel in fine motor skill jobs, such as electronic repairing work. Eva indicated,

What they do is [that] they check, they maintain and repair vital optical electronics equipment like binoculars or night sights and so on. And again, they do it very good.

- Visual recognition: Some people with ASD have strong visual capability to recognize patterns, shapes, sizes in pictures quickly. With that information, they can classify visual information efficiently and accurately. For example, the Fab28 employees with ASD joined Intel after they served the military. In the military, they used their special visual talents to observe the aerial photographs from satellite, airplanes and to extract intelligence information from the pictures. Eva stated,

There is a lot of visual information coming today from satellite, from airplanes, and so on. And you need these soldiers who will understand the pictures and understand what it means.

Intel Fab28 collaborated with Roim Rachok to hire employees with ASD to perform the Defect Metrology tasks. This type of job is consistent, mundane, and requires excellent visual ability to perform well. At Intel, the nature of Defect Metrology work was very similar. The job was to examine computer images of the silicon wafers in the manufacturing process, to detect and classify the errors to address defects of the problematic process tools and improve the silicon die yield. According to Yanni,

What we are doing in the Defect Metrology is that we are inspecting. We do some inspection and review, and we look at pictures. So, I know that the Israeli army also does it with the earth pictures. And I know because they came over sometime

to Intel and they show that's what they're doing in the army because it's pretty much the same.

When Roim Rachok got a job request from Intel, they performed a search for the IDF graduates with ASD to match the candidates with the job. Taylor, the job coach, mentioned,

Once the professional task has been found, I locate a graduate of the [IDF] program who has the appropriate professional experience and also that personally is appropriate for the work environment. Once a suitable candidate has been found, we will conduct an introductory interview with the receiving manager as well as a professional test that will show the potential.

Communication

One challenge in communication employees with ASD face is getting accurate instructions of their daily work from their management. At Fab28, their managers and supervisors provided very clear instructions to make sure that the employees understand them. As a manager, Sam indicated,

Sometimes, I need to breakdown the instructions and the tasks and to make sure that they understand. With George, I realize what is working well is to explain what I'm looking from him and then ask him to tell me what I have asked. Then I understand if he gets it or not.

Nathan confirmed that Sam provided him with very clear instructions and that he understood everything Sam said. Roy, the supervisor, also had the similar experience,

You have to be more direct and explain what you want from them and ask them also, 'do you understand what I'm saying?' And sometimes I ask them, 'please explain to me what I want from you', to make sure they understand everything I told them.

To help their neurotypical peers learn how to interact with employees with ASD Fab28 worked with Roim Rachok to provide an autism awareness training to their peers before the employees joined. Taylor, the job coach from Roim Rachok, explained the detail of the training,

This training aims to erase the stigmas and gives real and reliable information on how to work with a person on the autism spectrum... The content includes information on autism, what it's like to work with a person on the autism spectrum with lots of examples as well as an open conversation for employees' questions.

For example, the employees with ASD might not make eye contact during the conversation. It did not mean that they were disrespectful. Taylor continued,

The goal is to enable employees to receive reliable information along with the confidence that they are able to integrate a person on the autism spectrum into their team.

In addition to educating about autism, the training also helped neurotypical peers understand how to work with employees with ASD, as Sam described,

For all the shifts working with them, we have done lectures to explain [to] them what is the situation and that they need to react normally. It's not that they [autism employees] are going to do different things. They're going to be normal. They are workers, and they [neurotypical employees] don't need to do something special for them.

Once their peers understood this, they started to integrate the employees with ASD in the social events, as Roy said,

We are doing everything with them like when we have a standup [meeting] or pass down or we have a team meeting, a dinner. Everything like a regular employee and it's very important to them. Very important. Nathan, especially, [is] very fun and very interested in these social events. So, doing a lot [these events] with them shows that they're one of us and they are not different. It's very important to them to understand that they're like everyone else.

Sometimes, misunderstandings between employees with ASD and their neurotypical peers happened. At Fab28, before the Covid-19 pandemic, Taylor would come onsite once a week to help resolve the relationship issues. Sam described,

When she is coming, we ask Taylor to watch to see how they are working. If there are some issues, we talk with her to make sure she could help us. Sometimes she's helping us to deal with situation that is more difficult. She also talks with the other managers or other employees if there is a situation that we need help.

Life Skills

Prior to joining Intel, Roim Rachok trained these employees with ASD to use public transportation. The occupational therapists taught them their life skills that they needed in order to be a soldier. They must learn the life skill of how to use public transportation to go to work daily. After joining Intel, the buddy mentors of the employees with ASD also provided them guidance.

For challenges in time and money management, Taylor had meeting with the employees with ASD weekly to coach them how to navigate these life skills. As Sam described,

They talk about how to manage money, how to save money, how to meet new friends. One hour a week, they have big conversation among them.

Taylor also provided the detail on her weekly conversation how she helped the employees with ASD,

For example, an employee who has difficulty understanding how long it was okay to take a break from work may take many breaks at first...I present the mistakes and difficulties in a clear way and reflect the situation as it is, so I can talk about the difficulties and find solutions together.

Working Environment

To provide a stable and consistent working environment, Fab28 followed the suggestion of Roim Rachok to ask the employees with ASD to only work from 8am to 5pm, Monday through Friday. This meant that they would not follow one technician team's factory shift schedule. This consistent working hours during the week also allowed them to be mentored by more senior engineers as their buddies who also worked in these hours. As Sam explained,

The current employees [with ASD] are working only day shift when the other [neurotypical employees] are working day and night shifts [including the] need of

weekend... At the beginning it was because we wanted them to be supervised by the engineers, and the engineers are working only day shift. Also, Roim Rachok mentioned that it [day shift] would be better [for them].

However, working in day shift introduced another challenge. It was likely that some technical trainings might be conducted in night shift and the employees with ASD would miss those trainings and their work performance would be impacted. Sam described such a situation and how the management used key performance indicators and software tool to discover the issue it and fixed it,

We figured out that we had a few months that in Shift X, Nathan, George, and Thomas were a bit lower [performance] than other employees. They are the technicians and what we realized was that they didn't get all the trainings. They got the trainings at the beginning. And then since they were working in day shift and not in the regular shift, so there was [a] gap between their trainings and the regular shift trainings. So, we realized that there was [a] gap. In our daily meeting, we [then] invited engineers to give the trainings. In those [process] layers that they needed to be more focused, we sent them to get some trainings from the engineers. And then we closed the gap and now we see their progress.

In addition to the consistent shift, these employees also sat in the same location for the sake of accommodation. Sam continued,

At the beginning, they sat at different locations. Then we gathered them together into one location. It was because although the shift sits in the same location every day, their shifts are changing [because the employees with ASD work with all four different shift's technicians in daytime]. People in the shift like to sit on the same location. What we have done was that we allocated three stations for George, Thomas, and Nathan for their comfortability.

For the sensory issues, such as loud noise, Fab28 provided headphones to the employees with ASD to reduce the noise.

During the Covid-19, since employees were working from home, each shift's technicians set up a group chat application, called WhatsApp, in their smartphones to connect with each other instantly during work. If the employees with ASD needed help

from anyone in the work group during the work hours at home, they could broadcast a message to the group from their smartphones.

Mental Wellness

Roim Rachok was aware of the lack of self-acceptance of autism could cause people with ASD to hide their autistic condition in the workplace. As a result, they had developed a training session for their recruits, called “Talking Autism.” This training consisted of nine one-hour weekly group meetings. In the meeting, they first learned about autism through discussion of the diagnosis symptoms from the *Diagnostic and Statistical Manual* (DSM), the handbook used by medical professional to diagnose mental disorders. They discussed how the mind works, how it relates to autism, and what autism means to them. The training also brought out the importance of self-disclosure in the workplace. The training really helped the youth with ASD accept their condition of ASD. As Eva, the founder, described,

These group meetings are particularly meaningful and for some of them, it is the first and only opportunity to discuss this issue in a safe environment with a peer group.

At Intel, the employees with ASD no longer had an issue with accepting their condition and they were willing to disclose to other peers that they are on the spectrum. This disclosure led to accommodation in the workplace environment, such as noise and office accommodation. The accommodation helped reduce their stress and anxiety. Also, the disclosure allowed Roim Rachok’s job coach to conduct the autism awareness training with the employees who worked with employees with ASD. After the awareness training, most employees learned how to accept and work with these neurodiverse

employees. Roy, the shift supervisor, discussed the awareness training from Taylor and how other coworkers integrated the employees with ASD,

She did the training for us to learn how to react in some cases and what to accept and expect when we meet them and how to behave...The majority of the people want to get the knowledge and are very open and very accepting of the situation. It's very important for them to understand that they [the employees with ASD] are like everyone else. There is no difference. If I tell someone they did wrong, they want [that message] also. You tell them for the better [and] for the good [to them]. So, this is mostly what we are doing to integrate them.

The acceptance created a friendly working environment for these employees and reduced their stress and anxiety, as Nathan said,

I like talking to people here and they like talking with me. I am also the D.J. around here.

In addition to awareness training, the management team was also concerned with the mental wellness of the employees with ASD. Sam organized a daily meeting for these employees to discuss work related issues and personal issues. Due to Covid-19 work from home precautions implemented in 2020, this meeting became an online meeting. Manager and the employees with ASD continued the conversation daily to address their lonely working environment. In addition, the employees with ASD formed their own support group, as Nathan described,

When I finish my workday, I go down from my home to visit some friends... Some are working at Intel and some are not. But I want it to be proud of my best friend at Intel which is George.

George also expressed the gratitude of receiving support from Nathan,

My colleagues [and I] are together when I called them, or they call me... Nathan is calling me every morning... talk to someone when you feel lonely at heart. So, it is very good to talk and heal when you talk to someone.

Performance Management and Career Development

In performance management, Fab28 management used key performance indicators (KPIs) and metrics to track the performance of their employees, including those with ASD. If the indicators found slower performers, managers would find the root cause and design corrective actions to help the employees improve. Roy, the supervisor, illustrated how he managed the performance of the employees with ASD in his shift,

I have my software to look at their works ... that it can see every [silicon wafer] lot they're doing. What are the comments they're writing on the lots, and what is their response to the lot so I can see if the work is good, not good enough, not significantly enough [in] quality. I can point out to them what I think it should be done.

Sometimes, their personal life might impact the performance at work. The manager stayed in close contact with their families to find a resolution when they encountered issues in their personal life. Sam elaborated the importance of staying connected with the parents of the employees with ASD,

It's really important to talk with the parents also without the employees. If they were upset at home, there was more than one situation that they called me and they said, 'OK, we need help. We need you to talk with our son.' Because this is different than regular employees, I'm talking with them [the parents] about everything. They were telling me about that they would like to have some relationship.

For career development, Fab28 constantly provided learning opportunities for the employees with ASD. These employees had a core job assignment on defect classification but also had different tasks to improve their different skills, such as coordination and leadership Sam explained,

Their core work is classification, but I'm trying to find different tasks every day for them... With Nathan, last year, we have ISO [International Organization for Standardization] audit. Nathan was one of our internal auditors, so we gave him checklists and he went to few employees and checked what their readiness for the audit. And it was really good.

The goal was to create a meaningful workday for these employees, as Sam indicated,

I'm trying to make sure that they will have a win-win situation. I don't want that they will come to work, and we have nothing for them to do. I want that every day they will have a full meaningful day... Every time that we have extra work we need to do and are looking for resource, I'm trying to see how can I use them in a good way.

This theme identified the specific ways that the workplace circle of support and the different trainings helped to address the onboarding challenges of the employees with ASD. The autism hiring program utilized the external agency to match the right candidates to the job. The autism awareness training helped neurotypical colleagues to learn how to communicate well with these employees. The job coach regularly met with these employees to help their workplace issues. Management offered workplace accommodation and monitored their performance and career development closely. These findings provided answers to research sub-questions 1, 3, 4 and 5.

Theme 5: The employment outcomes of the Intel autism hiring program at Fab28

The outcomes of the onboarding process include performance and retention. If the employees do not onboard successfully, their job performance will be negatively impacted, and they may not be able to stay on the job for long. At Fab28, each employee's accuracy of the defect classification was tracked as an indicator of performance. Roy, the shift supervisor, praised the good performances of the employees with ASD,

They came from the background of mapping in the army. So, the work that they are doing in Israel and in Intel, it's like defect detection. It's looking on a spec versus the lot versus the defects. And they can compare it, so they have the ability to do their job. So, beyond the good job that they're doing in their core job, it's also good for the other guys to be near those guys and learn from them.

Sam also reflected on the ability of the employees with ASD on their core job:

The work they do is far from simple. For a normative person, it is difficult to perform this work in a consistent manner. It is the people on the autistic spectrum that are capable of doing it day after day with the same level of seriousness and with excellent quality.

Sam gave an example that one of the shift supervisors was concerned the impact of missing George's contribution when George was planning a vacation.

Another indicator of their good performance is the number of recognitions these employees are getting. When asked how often Nathan received recognition from coworkers, he replied,

Very often I get the recognitions. For example, I can read one of many: "thank you for all the help to front-end shift 2, for all your great classification support on extra hours."

Sam, their manager, also attested,

When they're doing special tasks, they are getting recognitions. They are getting a lot of recognitions from coworkers or engineers getting helps from them, so this really makes them get progress overtime.

Employees with ASD at Fab28 performed very well in their core job of defect classification. Almost three years after starting the autism hiring program, Fab28 achieved 100% retention rate of these employees who were flourishing in the defect classification jobs, which they were hired to perform. Yanni presented this success to the Intel disability leadership council. She also indicated that other Intel Israel organizations, such as Intel Sport and Israel Design Center, had also started to hire other employees with ASD with helps from Roim Rachok. Recently, another Intel manufacturing group in the U.S. contacted Yanni, asking Fab28 to consider performing defect classification tasks for this group.

Another outcome is that the colleagues of the employees with ASD felt good in helping them, as Roy indicated,

We are learning how to work with this type of persons. So, it gives you a lot of satisfaction when you're doing something good and helping them. Many times, they're coming to us for help. So, beyond that we are giving them the advice, they give us the satisfaction of helping them.

Intel's autism hiring program created a win-win situation for Fab28 and the employees with ASD. It produced good employment outcomes when these employees were onboarded successfully.

Analysis of the Themes

The findings of these themes highlighted six new discoveries in the onboarding practice for the employees with ASD at Intel. First, companies should work with external agencies to provide autism self-acceptance training to the job candidates. Second, the job coaching should be a team effort to address the occupational, communication, and psychological needs of these employees. Third, when forming the circle of support for the employees with ASD, it was important to examine the motivation of the support personnel and recruit those who can see the value of these employees and be willing to help them be successful. Fourth, management and family members should maintain an open communication channel to help the employees. Fifth, companies could leverage technology to implement an automatic performance monitoring system to help these employees make performance corrective actions and improvement. Sixth, in addition to onboarding practice, the study also gave insights on how to develop the careers of the employees with ASD.

Self-Acceptance Training

One of the employment barriers for people with ASD that the researcher discussed is the unwilling disclosure of their autistic condition to their employers, the managers, or their coworkers. They are afraid that the disclosure may lead to social stigmatism, isolation by their peers, and unemployment (Krieger, Kinébanian, Prodingler, & Heigl, 2012). In the U.S., only 39% of people with disabilities have disclosed to their managers, and 24% of them had disclosed to their coworkers (Jain-Link & Kennedy, 2019). However, studies have shown that disclosure could help them get job accommodations and retain their employment (Hurlbutt & Chalmers, 2004). To help employees with disabilities disclose their conditions, companies now provide disclosure and accommodation training. This has helped increase the rate of disclosure to their human resource offices slightly from 21% to 31%, but this is only a partial solution because most employees were still unwilling to disclose their conditions (Sherbin, & Kennedy, 2017).

One surprise finding in this study was that another cause for non-disclosure, other than the fear of social stigma, was self-acceptance of their own autistic condition. If people with ASD could not accept that they were autistic after being diagnosed, they would certainly not tell others that they had autism. According to Eva, the founder of the Roim Rachok organization, although many youths with ASD had been diagnosed with autism when they were young, their parents might not accept the findings and hide the diagnosis from their children,

Some [parents] may take a direct approach showing the child their condition in accordance with their age; others will choose to completely hide information about the diagnosis and keep it as a secret.

This could lead to denial of their autistic condition as the children reached adulthood.

These youths might observe their behaviors as similar to others who have autism but still not want to admit that they are autistic. Eva described a young person's response in his first day of training in Roim Rachok program:

We sat excitedly around the table, 12 students and about 60 members introducing ourselves. Each said his name, how old he is, where he comes from in Israel and so on. Suddenly one of our students ... introduced himself and said, 'I am not like you, I'm not autistic...I wasn't diagnosed. I was put in a special education class because the school needed resources. I'm not really autistic.'

In another incident, the parents erased the autism diagnosis from the medical report before let the son look at it, as Eva described the response from another youth with ASD in the program,

'I'm not diagnosed with autism. I read my diagnosis and it doesn't say ASD.' When I asked his parents, they told me [that] they erased with Tipp-Ex, you know the white matter. They erased the word "autism" from his diagnosis and only then they allowed him to read the diagnosis.

After recognizing the prevalence of self-acceptance issue, Roim Rachok decided to create a training course, called "Talking Autism" for the youth with ASD in the program. It was a course of nine, one-hour weekly meetings. The contents of the training included the discussion of the autistic diagnosis, the relationship between the brain and the autism, the sensory processing for people with ASD, and the personal meaning of autism.

With the new knowledge about autism learned through the self-acceptance training, the youth with ASD no longer felt the need to conceal their autistic conditions because ASD is a neurodiversity, not mental sickness. Also, when Roim Rachok and Intel created the autism hiring program, both organizations agreed that the program would not

hide the employees' autistic condition. As a result of this disclosure and the autism awareness training Roim Rachok provided to the managers and colleagues, the employees with ASD were receiving the necessary accommodations, such as their regular 8-5 shift hour, and the acceptance from their coworkers, as Roy mentioned,

I didn't come from this [autism] background. But we have a woman [job coach] who is working with three of them. She did [the] training for us to learn how to react in some cases and what to accept and expect when we meet them and how to behave. So, we got the training... In the beginning, it was a little bit difficult for all sides, also for them... Now, their work relationships [with their peers] are good.

In summary, this study found that when starting a new autism hiring program, an organization should partner with an external sourcing organization which can provide autism self-acceptance training to the candidates, and should advertise that the nature of the hiring program is for the employment of people with ASD. This eliminates the need for self-disclosure. When the employees with ASD come onboard, the company needs to provide autism awareness training to the coworkers of the employees for the purpose of removing the social stigma associated with autism, providing accommodation, and accepting these new employees during their onboarding.

Professional Team for Coaching

One key attribute of Intel's autism hiring program was the partnership with an external agency, Roim Rachok, that recruited, trained, and supported the potential employees with ASD in a systematic way before they joined Intel. Prior to coming to Intel, these employees went through a 3-month full-time training course in both technical skills and soft skills as well as about 3 years military service where they gained professional work experiences in the IDF. After military service, this external agency continued to support these young adults with ASD by helping match their skillset with

industry jobs at companies like Intel. These employees were hired through this alternative hiring process without going through the traditional interview process, which has been identified as a barrier to their employment (Flower, Hedley, Spoor, and Dissanayake, 2019).

Throughout their employment, Roim Rachok provided a team of occupational therapists, speech therapists, and psychotherapists to help employees with ASD address their concerns, such as learning how to use public transportation system to get to work and how to communicate with their peers. They also sent an occupational therapist and a psychotherapist as job coaches to the organization to provide the autism awareness training and help to the coworkers. According to Eva, the founder of Roim Rachok, this team of professional therapists are the key to the success of the employment of the employees with ASD. She learned that the support to these employees was lifelong, not just the first year of employment,

It's lifelong support for people with autism, and I know I'm talking about military service, but it's exactly the same in working places. If you want to open some employment program, you must take in consideration that you will have to give professional support.

This discovery highlighted an alternative hiring process, which did not use traditional interviews. Instead, Roim Rachok offered pre-employment training in both technical and soft skills to the potential employees, autism awareness trainings to neurotypical coworkers, and lifelong employment supports through a team of therapists. They could assist with the full spectrum of employment issues of the employees with ASD. Many studies (Annabi et al., 2019; Austin & Pisano, 2017; Loiacono & Ren, 2018) discussed similar hiring programs and identified the job coach as a person who works with the new hire on work practices; time management; collaboration and

communication; and facilitates discussions with the employee's personal circle of support in the first 90 days of employment. This study discovered that the job coach should not be just one person but a team of professionals who are experts in the fields of occupational practices, communication, and mental wellness counseling in order to increase the chance of the program success. In addition, the trainings from this team to the potential job candidates should start well before the job matching so that the candidates were ready to be integrated into the workplace when they were hired. The support from this team should be continued during the employment, not just during the first 90 days.

Motivation of the Support Circle

Although the workplace circle of support is an important element of an autism hiring program, there are few studies documenting the motivation of the stakeholders in the circle. It is important to understand the motivation because it helps identify the best people to involve in this circle for the success of ASD employees. For example, in this study, Sam, the manager, has a ten-year-old son who has ASD, and he had experience to working with people with ASD. He knew how important it is to provide clear instruction to the employees with ASD. At work, he patiently broke the task instructions into detailed steps and asked them to tell him what they heard to make sure that they understood the instructions. His goal was to help employees with ASD to integrate into the workplace successfully and to be productive for Intel.

Roy, the supervisor, also has a son who has hearing disability. He understood the struggle of people with disability. Although he did not know how to work with employees with ASD and admitted fear when he first learned that he would supervise

them, he saw the good work and potential of these employees. Roy learned from interacting with them socially and inclusively. He took pride and got his satisfaction in helping them.

This study found that it is important to recruit people in the workplace circle of support, such as managers, buddies, mentors, or supervisors, who understand the struggles of people with disabilities and are willing to help. They were willing to learn how to communicate differently with neurodiverse people who think differently. It might require them to be more patient with the employees with ASD. They also believed in the values of the autism hiring program for both the employees with ASD, so that they can live independently, and also for the company, which could utilize their talents to grow the business. They genuinely wanted to help others and got satisfaction by doing good things. Although they might be recognized in the company for their good work, they were not motivated by recognition from others. Despite this intrinsic motivation, Intel should publicly recognize these employees for their inclusion effort. Public recognition would raise awareness of this autism hiring program and could help recruit more people to participate in support circle for future ASD employees.

Interaction with Personal Life Support Circle

One unexpected finding was the importance of interaction between the managers in the workplace circle of support and the families in the personal life circle of support. According to Annabi et al. (2019), the personal life circle consisted of the external job coach who was also a member in the workplace circle of support, the vocational and rehabilitation counselor, personal counselor, and family and friends. Although companies with autism hiring programs, such as SAP, acknowledged the roles of both circles in

helping the employees (Austin & Pisano, 2017), there were few mentions of the interaction between the managers and the family members in the literature review. In the corporate world, there are privacy laws that govern the collection of personal data of employee. According to Intel's code of conduct (Intel, 2021), managers are required to comply with the laws and company policies to protect the privacy of their employees. They only collect employees' personal information required for business operation. Managers do not interact employee's family members to gather information that is not related the work of the employee. Fab28's policies are similar. Managers usually do not communicate with the families of the employees, as Sam, the manager, mentioned,

I am managing 19 employees. None of them would I talk with the parents or with the family unless I have a good relationship with the family.

However, for the young employees with ASD, most of them still live with their parents who provide various supports, such as transportation, or emotional support. In order to help them be successful in the workplace, managers have to communicate periodically with the parents to understand what they were going through in personal and work lives. This communication is very important to address these employees' mental wellness issues as soon as possible so that they can be effective in their job. As a result, managers of these employees should discern when they need to know information regarding their personal lives in order to effectively help them, while also safeguarding the privacy of the employees.

Performance Monitoring with Automation

One of the success indicators for onboarding was employee's performance and productivity (Bauer & Erdogan, 2011; Snell, 2006). When employees encounter obstacles at work without help, they could not produce good work. For employees with ASD, their

onboarding challenges with communication could lead to low performance because some might not seek help when they had questions or encountered obstacles. As a result, it was crucial to observe their performance closely in order to find the root cause of their low performance issues and implement corrective measures to help these employees perform. Managers should identify a clear set of performance indicators and regularly monitor these indicators. Using an automated monitoring process improves the immediacy by which managers can respond and support employees with ASD. In Feb28, since the technicians with ASD performed the task of defect classification using their computers, their performance results were recorded in a database that management could observe if there were any performance issues. After the observation, management could quickly identify the reasons behind the issue. In one instance, the manager found that the low performance of the technicians with ASD was due to their missing some crucial technical trainings. As a result, the manager organized the trainings for these employees to correct their performance issue.

The findings in this study indicate the importance of frequent performance monitoring and the support that automation of performance monitoring provides for the employees with ASD. This might not be as important for neurotypical employees since they would not have the similar communication challenges.

Career Development for employees with ASD

Due to the fast-changing nature of the technology industry, companies have to continue developing their employees' skills to meet new challenges. Gilley and Egglund (1989) discussed the need of the engagement of both employees and organizations in career development activities. However, many companies assume that employees with

ASD will not need to develop new job skills because they are very good at what they are doing, and they do not tire of mundane or repetitive work. This thinking might lead to the conclusion that other job functions might be difficult for them to learn and they could continue to work in the same jobs without learning new skills or switching to new positions. Also, there is little research on career development of people with ASD because this population has low employment and high turnover rates in the workplace. Current research focuses on their skill training, assessment, and placement (Berkell, 1987; Flower, Hedley, Spoor, & Dissanayake, 2019; Austin, Wareham, & Busquets, 2008). Companies might not know how to support and implement career development plans for employees with ASD. This case study provided good insights into how managers could continue to develop the careers of these employees.

At Fab28, the manager assigned a core task and some supplementary tasks to each of the employees with ASD. Their core task was the defect classification, which utilizes their core strength. The supplementary tasks asked them to learn new skills, such as technical skills, leadership skills, and coordination skills.

Although Intel has an internal job market site, it might not be easy for the employees with ASD to use this internal job program to transfer to new positions because the new department would not have the same workplace supports that are tailored for these employees. This study found that it was important for employees with ASD to work with their current managers to progress incrementally towards new career growth.

Summary

Five distinct themes emerged from the data analysis. The first theme explains how an autism hiring program can be established through the partnership with an external

agency, which could help train the potential candidates with ASD in both technical and soft skills, as well as match their skillsets to the right jobs in a technology company. The second theme explores who the stakeholders in the workplace circle of support are and what their motivations are. It identified this circle of people who are motivated to help people with disabilities use their talents to benefit the business unit. The third theme examines the onboarding challenges of the employees with ASD in the areas of job matching, communication, life skills, working environment, mental wellness, performance management, and career development. The fourth theme reveals how the workplace circle of support and different trainings address each of these challenges. Finally, the last theme shows the employment outcomes of the autism hiring program.

Further analysis of these themes led to six new discoveries of onboarding practices for employees with ASD: (1) providing self-acceptance training for employees with ASD, (2) forming a professional team of job coaches to help employees in handling different issues in life and workplace, (3) examining the motivation of the workplace circle of support, (4) communicating with the personal circle of support of these employees, (5) monitoring their performance closely, and (6) designing career development path for these employees to continue to grow. Chapter 5 will discuss these discoveries and conclude with the implication of these findings and their application to the onboarding practices for employees with ASD in the technology industry.

Chapter 5 – Discussion and Conclusion

This research explored how a hi-tech technology company, Intel, which has an autism hiring program, onboarded employees with ASD. It utilized six interviews, one direct observation, and public documentation to collect the data for analysis. The interview participants included one senior manager who sponsored the autism hiring program, one manager who managed three employees with ASD, two employees with ASD, one job coach, and one supervisor.

Discussion

Five themes emerged in the data analysis: partnership with external agencies; workplace circle of support and the motivation of the people in the circle; the onboarding challenges for employees with ASD; the specific measures to address the challenges; and the employment outcomes of this program. It was important for Intel to leverage the knowledge of an external agency which could identify the potential candidates with ASD, provide technical and soft skills trainings to these candidates, match the jobs with the corresponding skillsets of the candidates, and offer on-going job coaching once they ed. onboarded. Management needed to form a support circle from carefully recruited employees whose motives had been examined. Employees recruited for the support circle should have an inclusive mindset, see the value employees with ASC can bring to the company, want to help them be successful in workplace, and be willing to make changes to accommodate these employees. Many of the onboarding challenges, such as communication, work environment, and mental wellness concerns, has been documented in the literature review (Centers for Disease Control and Prevention, 2020b; Autism Speaks, 2019b; Eaves & Ho, 2008). In addition to reaffirming the previous findings of

those challenges, the study identified specific ways to effectively address these challenges, including self-acceptance training, employee training on ASD, direct communication from management with family members, and regular performance monitoring. It is also important to pay special attention to the career development of employees with ASD. Assistance from the external agency, the workplace support circle, and the awareness training led to high work performance of the employees with ASD and 100% retention rate, which speaks for the success of the onboarding process.

Yin (2009) and Merriam (2002) posited that a case study approach is best used to describe the phenomenon in-depth and to explain how a program works. Although there is literature revealing how the model of job onboarding process should look (Bauer & Erdogan, 2011) and research presenting challenges neurodiverse employees face in a technical workforce (Morris, Begel, and Wiedermann, 2015), few studies have explained in-depth how to implement an onboarding process to help employees with ASD address these challenges. For example, one of the challenges is the interpersonal conflict between neurodiverse employees and their neurotypical colleagues. Annabi et al. (2019) described that the job coach can work with the new hire on communication, but there was no specific detail on how the job coach helped resolve the interpersonal conflict. The findings in this study; however, gave a detailed account how a job coach used the autism awareness training to educate neurotypical employees before conflicts happened, and how she met with both employees with ASD and their coworkers to resolve interpersonal issues when conflicts happened.

Another in-depth understanding is in the area of the life skill challenge of the employees with ASD. This challenge was usually not mentioned in onboarding literature

because it might not obviously relate to workplace onboarding issues. It was easy to assume that onboarding issues happened in the workplace. However, this study found that one important life skill, the ability to take public transportation by employees with ASD, was relevant to the onboarding success of the employees with ASD. Without knowing how to take public transportation, the employees could not get to work on-time. Because of its importance, the job candidates received extensive life skill training, and learned how to take public transportation before starting their new jobs.

In the area of accommodation, many studies discussed workplace accommodations for sensory challenges, such as noise and lighting for employees with ASD. This study also discovered that the employees with ASD should be accommodated with a consistent working schedule. It was important for them to have a constant shift to work because it is not easy for them to adjust to changing shifts. The study discovered a side-effect of this accommodation. Due to working shifts different than other employees in the same department, they missed some technical training conducted outside their static working hours. To address this side-effect, management also needed to accommodate them with extra training sessions held during their working hours.

Implications for Practice

This case study prescribes a blueprint of five steps to onboard employees with ASD:

- *Collaborate with an external agency with expertise:* For companies that are new to autism hiring, many collaborate with external agencies for finding talent. This study identifies the different areas of expertise that they need from external agencies: (1) finding potential candidates with ASD, (2)

providing candidates with trainings in occupation skills, communication skills, and mental wellness management skills, (3) helping them in self-acceptance and self-advocacy through disclosure, (4) matching their talents with particular jobs, (5) coaching their employment in the workplace after being hired, and (6) facilitating autism awareness training for the neurotypical colleagues. It also demonstrates the importance of partnering with one external agency which possesses all the above expertise because it is difficult for the candidates to build trust and relationships with many different agencies during their job searching and onboarding. Intel Fab28 worked with Roim Rachok, which could service all the above functions. In addition, the agency used a holistic approach to form a professional team that included an occupational therapist, a speech therapist, and a psychotherapist, all whom helped to coach the candidates on their job skills, communication skills, and mental wellness management skills. This professional team continued their coaching of and advocacy for these employees with ASD in the workplace long after their employment. The founder of Roim Rachok attributed this job coaching team approach as a key element to the success of the Intel autism hiring program, “I think that one of the keys for our success is this multidisciplinary team.”

- *Encourage self-disclosure through an official autism hiring program:*
Although research has shown the importance of self-disclosure (Hurlbutt & Chalmers, 2004), employees with ASD may still want to keep their condition secret out of the concern for social stigma (Krieger, Kinébanian, Prodingler, &

Heigl, 2012). The implication is that if employees with ASD are hired without the need to disclose their condition, many may not disclose. Non-disclosure can become a barrier for their employment. Finding a way to encourage self-disclosure becomes crucial to break the employment barrier. This case study demonstrated how self-disclosure can be achieved naturally through an official hiring program. When a company creates an official autism hiring program, self-disclosure becomes a natural requirement for the candidates with ASD who apply. When managers hire these candidates through this program into their teams, their neurotypical managers and colleagues will be informed of their condition. This natural disclosure removes the need for the employees with ASD to hide their condition, which hinders the mutual understanding needed to create an inclusive working environment. Disclosure allows the managers to provide accommodation for their conditions, such as creating a static work schedule, assigning a quiet office, dimming the lights, and providing written instructions.

Once these employees are hired, the organization should also arrange autism awareness training to the neurotypical managers and colleagues so that they understand what ASD is and how they can work effectively with these employees. Awareness training can remove the myths of ASD and the fear of working with employees with ASD. The awareness enables the neurotypical employees to include neurodiverse employees in the social functions of the workplace. In addition, the organization needs to recruit people in their circle of support who are passionate about helping strengthen

disability hiring because they see the value of these employees to the company, and they want to help the people with ASD.

- *Monitor the performance of employees with ASD closely:* Once the employees with ASD are hired, the organization should define the KPIs, monitor their progress against the KPIs closely, and correct any performance issues as soon as possible. Clear KPIs are important because some employees with ASD are less verbal and may not communicate when they are struggling with their tasks. KPIs allow managers to measure their performance. The KPIs need to be granular enough that they can be measured in a short period of time, such as daily. In addition, the organization should automate the monitoring of their KPIs to quickly flag the slow performance. For example, Fab28 used software to daily monitor the defect classification results, and the comments entered by the employees with ASD. If the KPIs indicate any performance issue, the managers and supervisors can find the root cause and correct the issues as soon as possible. Moreover, organizations can use these KPIs to compare the performances of employees with ASD and neurotypical employees. The comparison can indicate if an autism hiring program produces a desirable business outcome. Fab28 discovered excellent performance results from the employees with ASD.
- *Connect management with a personal circle of support:* The study also revealed that it is important for managers of the employees with ASD to periodically connect to people in the personal circle of support with these employees to address personal issues that may impact their performance in

the workplace. For example, during the current Covid-19 pandemic, the employees with ASD worked from home alone and lacked face-to-face interactions with their colleagues in the workplace. They felt loneliness that might impact their mental health. The Fab28 program has demonstrated the effectiveness of such communication between the manager and the employees' parents helped their mental wellness and money management. However, due to privacy concerns, managers may hesitate to establish this connection. Organizations should work with these employees and their personal circle of support to remove the obstacles that prevent such connection. For example, parents of these employees can establish legal guardianship for their adult children or create a power of attorney document to act for them. Employees can also sign a consent form to allow the company to directly communicate with their parents. Without such a connection, managers may not be aware of any personal issues outside workplace that impact their job performance and will not know how to help these employees.

- *Pay special attention on the career development of employees with ASD:*

Finally, after onboarding employees with ASD, an organization should pay special attention to developing the careers of these talents. Because individuals with ASD are very good at performing their jobs using their special talents, it is easy to keep them in the same job, doing the same tasks for a long time. This will not help them continue to grow in the technology industry. One way to develop their new skills is to constantly supplement

their core tasks with new tasks. This can slowly expand their scope of work and responsibilities in workplace. In addition, companies should also keep track of their movement when they transfer to a new organization within the company. In a new organization, they will need to form a new circle of support. Their managers and colleagues will need autism awareness training. Without these supports, the employees with ASD may struggle to perform in their jobs.

So far, the Fab28 autism hiring program is the only official hiring program for employees with ASD at Intel. This five-step blueprint allows other Intel business units around the world to implement their local autism hiring programs with high probability of success in onboarding the employees with ASD. (1) An Intel organization needs to research the capabilities of external agencies and identify a partner who can help source, match, train, and coach the candidates with ASD. (2) It then needs to create an official autism hiring program to recruit the matched candidates. Through this program, the new employees automatically self-disclose their conditions and the organization can organize awareness training to their neurotypical colleagues. (3) Management should monitor employee performance closely to help address any performance issues quickly. (4) Management should also connect to their personal circle of support, such as parents of the employees with ASD. This connection provides a holistic understanding of the issues encountered by these employees that may impact their performance at work. (5) Special attention is also required for develop their skills and careers in the long term.

Perspective on Autism Employment Research

This onboarding research on employees with ASD in the technology industry can contribute to the body of knowledge in autism employment research. This research explored the process of onboarding these employees through a case study of the Intel Fab28 autism hiring program. It examined the onboarding challenges of these employees in the workplace, how an organization used the circle of support and different trainings to help them onboard, and the employment outcomes. It drew implications and recommendations on areas of the partnership with external agencies, the importance of disclosure, performance monitoring, the connection to personal circle of support, and the career development for these employees.

Intel currently does not have a global autism hiring program. One Intel fabrication site in Arizona has contacted Fab28 to learn how to start an autism hiring program in the U.S. Another Intel fabrication site in Oregon has asked Fab28 to share their technicians with ASD to perform defect classification tasks. Intel Data Platforms Group, which is responsible for the datacenter product research and development, also expressed interest in learning how to implement an autism hiring program. These recommendations can serve as a blueprint for how to globally onboard employees with ASD for Intel in both chip manufacturing and product development environments. This blueprint can also allow Intel to share with other technology companies, which may be considering establishing new autism hiring programs. All these possibilities will help improve the dismal employment situation for people with ASD.

Although the primary goal for the study is to understand the onboarding process of employees with ASD in technology industry, it also covers the recruiting process prior

to onboarding and the career development after the onboarding in the employment life cycle. These different stages in the employment life cycle are intertwined. To understand how to make the onboarding process effective requires certain knowledge of the recruiting process and career development.

Limitations of the Study

Although Intel is a technology company, its main business is semi-conductor manufacturing. The Fab28 autism hiring program focused on the hiring of technicians with ASD in chip manufacturing to perform the job of defect classification. The program utilized the special visualization skill of these employees to achieve quality results. Since technicians are usually supervised closely on their daily performance, the onboarding support may be different from other job types, such as software development engineers who work more independently with less supervision. The onboarding learning from this study may not be fully applied to people with ASD in more independent jobs. Moreover, this program fully disclosed the conditions of the employees with ASD to their neurotypical coworkers. With the help of awareness training, their coworkers accepted these employees openly in this program. However, this study does not examine instances when the employees do not disclose their condition to other coworkers. Another limitation is that the participants with ASD in this study had served with the Israel military before being hired by Intel. They had cumulated training and experiences that helped prepare them for transitioning to industry employment. This would not be the situation when applying the learning to other geographic locations.

During the interviews with the employees with ASD, the response to some interview questions were short and not elaborated due to the different communication

style of employees with ASD. Even when the questions were presented in different ways, the same responses were provided. In those situations, the researcher had to rely on other neurotypical interviewees to give more detailed answers to those questions. Also, the job coach was only available to provide answers to the interviewing questions through email correspondence. As a result, no non-verbal expressions, which could give more insight to the answers, were observed.

The study found that the circle of support for a new employee with ASD in Fab28 included a buddy mentor who was an engineer assigned to help the employee in the first three months. Unfortunately, because the ASD employees involved in this study had been working for more than two years, their buddies were no longer working in the group. As a result, the study did not interview those individuals who played the buddy role for these employees. Instead, the information about the buddy support was collected through the secondary account from other interviewees. Also, due to no buddy interviewee and the fact that one employee declined to be interviewed, the study only included six people-- two managers, two employees with ASD, one job coach and one supervisor on a single team. In addition, the Covid-19 pandemic prevented the face-to-face interviews that would have allowed the researcher to clearly observe non-verbal cues.

Future Research

This research is one of the few qualitative studies to interview neurodiverse employees, their managers, and their coworkers on the onboarding experience of employees with ASD in the technology industry (Morris, Begel, and Wiedermann, 2015). It focused on the Intel Israel Fab28 autism hiring program. Future studies should replicate this research study in other technical areas other than manufacturing, such as software

engineering since many technology companies employ autistic employees in the areas of software development and testing (SAP, 2013; Microsoft, 2015). In addition, future similar studies can target technology companies in other geographical locations, such as in the U.S., to understand if the onboarding experience in the current study is universal or different in various locations.

Also, in order to recruit employees with different technical talents, companies may need to place employees with ASD in multiple organizations. A pertinent study may be required to understand what onboarding supports can be centralized and what can be distributed to effectively support the onboarding of these employees across different organizations. Another area for future study is the effect of personal circle of support on the onboarding experiences and performance of employees with ASD. Mental wellness is one of the obstacles facing these employees. This study revealed that working from home can lead to loneliness for these employees. It is important to understand how the personal circle of support can help them in this situation.

Career development of employees with ASD is a research area that deserves more focus to help these employees progress in their careers. It is easy to assume that these employees should stay in the same tasks that they perform well. However, technology is changing. If companies do not develop their careers, employees with ASD could be phased out the industry. For employees with ASD, self-initiated moves to other positions may not be easy due to communication challenges and the lack of support outside their current organization. As a result, it is important to understand how the career coach can help, how autistic employees can develop new skills, and how they can transfer to new jobs successfully.

Conclusion

One billion people around the world live with disability. Many of them are unemployed or underemployed due to both conscious and unconscious biases in the workplace toward people with disability. Among people with a disability, those with ASD have even more difficulty in finding and retaining their jobs. They may not be able to live a productive life and may have to rely on the help of government and family in their adulthood, though many have exceptional talents and skills that have been overlooked by employers. It is important to find ways to assist them in seeking employment that can utilize their talents and skills, onboarding them to make them productive, and developing their careers to retain these employees in workplace. Their employment can help them reduce their financial reliance on society and improve their quality of life.

The purpose statement of Intel Corporation is “to create world-changing technology that improves the lives of every person on earth” (Intel, 2020). The company strives to lead in corporate responsibility that helps the technology industry advance in environmental sustainability, social impact, and governance. Recently, it set a corporate responsibility goal to create a more responsible (R), inclusive (I), and sustainable (S) world, enabled (E) through its technology and its employees by 2030. In this 2030 RISE goal, Intel wants to build an inclusive workforce that increases the percentage of employees who self-identify as having disability from currently less than two percent to 10 percent. One Intel manufacturing site, Fab28, is taking up the challenge, recruiting people with ASD in Israel. The Fab28 autism hiring program partners with an external experienced non-profit organization to hire employees with ASD. It enlists passionate

people to form the support circles to help these employees in the workplace. It has an onboarding process to address their needs of integration and to assist them in career progress. Program outcomes include good performance and contribution from these employees, producing 100% retention rate after 3 years, and colleagues having the great satisfaction of seeing these marginalized population with ASD thriving. This creates win-win situation for both Fab28 and employees with ASD, serving as a blueprint for other Intel business units and industry companies on how to implement an autism hiring program and onboard the employees with ASD. The lessons from this Fab28 autism hiring program can help the company achieve its 2030 RISE corporate responsibility goal of hiring more people with a disability.

References

- AAIDD. (2016). Community living and participation for people with intellectual and developmental disabilities. <https://www.aaidd.org/news-policy/policy/position-statements/community-living-and-participation>
- Alcorn, P. (2020, August 4). *AMD reaches highest overall x86 chip market share since 2013*. Tom's Hardware. <https://www.tomshardware.com/news/amd-vs-intel-highest-overall-x86-chip-market-share>
- Anand, R., & Winters, M.-F. (2008). A Retrospective view of corporate diversity training from 1964 to the present. *Academy of Management Learning & Education*, 7(3), 356–372. <https://doi.org/10.5465/AMLE.2008.34251673>
- Annabi, H., Crooks, E.W., Barnett, N., Guadagno, J., Mahoney, J.R., Michelle, J., Pacilio, A., Shukla, H., & Velasco, J. (2019). *Autism@Work playbook: Finding talent and creating meaningful employment opportunities for people with autism*. Seattle, WA: ACCESS-IT, The Information School, University of Washington
- Austin, R., & Pisano, G. (2017). Neurodiversity as a competitive advantage. *Harvard Business Review*, Harvard Business Review, May/June 2017
- Austin, R., & Sonne, T. (2014). The dandelion principle: Redesigning work for the innovation economy. *MIT Sloan Management Review*, 55(4), 67-72.
- Austin, R., Wareham, J., & Busquets, J. (2008). *Specialisterne: Sense & details*. HBS No. 9-608-109. Harvard Business School Publishing.
- Autism Speaks. (2019a). *Executive functioning*. <https://www.autismspeaks.org/executive-functioning>

- Autism Speaks. (2019b). *Sensory Issues*. <https://www.autismspeaks.org/sensory-issues>
- Bauer, T. N., & Erdogan, B. (2011). *Organizational socialization: The effective onboarding of new employees*. In S. Zedeck (Ed.), *APA handbooks in psychology*®. *APA handbook of industrial and organizational psychology, Vol. 3. Maintaining, expanding, and contracting the organization* (p. 51–64). American Psychological Association.
- Berkell, D. E. (1987). Career development for youth with autism. *Journal of Career Development, 13*(4), 14–20. <https://doi.org/10.1007/BF01354705>
- Beuving, J., & Vries, G. C. de. (2015). *Doing qualitative research: The craft of naturalistic inquiry*. Amsterdam University Press.
- Bolman, L., & Deal, T. (2013). *Reframing organization: Artistry, choice and leadership* (5th ed.). Hoboken: Wiley.
- Bressler, R. B., & Lacy, A. W. (1980). An Analysis of the relative job Progression of the perceptibly physically handicapped. *The Academy of Management Journal, 23*(1), 132–143. <https://doi.org/10.2307/255500>
- Cable, D. M., Gino, F., & Staats, B. R. (2013). Reinventing employee onboarding. *MIT Sloan Management Review, 54*(3), 23-28.
- Catalyst Consulting Group. (2014, February 7). *Success among Hispanics take more than this banner*. <http://www.bankingexchange.com/community-banking/how-to/item/4387-success-among-hispanics-takes-more-than-this-banner>
- Centers for Disease Control and Prevention. (2019). *Signs and symptoms of autism spectrum disorders*. <https://www.cdc.gov/ncbddd/autism/signs.html>

Centers for Disease Control and Prevention. (2020a). *Data and statistics on autism spectrum disorder*. <https://www.cdc.gov/ncbddd/autism/data.html>

Centers for Disease Control and Prevention. (2020b). *What is autism spectrum disorder?* <https://www.cdc.gov/ncbddd/autism/facts.html>

Che, J. (2016, March 23). *Why more companies are eager to hire people with autism*. HuffPost. https://www.huffpost.com/entry/companies-hiring-people-with-autism_n_56e99cdf4b065e2e3d82ab4

Coleman, D. M., & Adams, J. B. (2018). Survey of vocational experiences of adults with autism spectrum disorders, and recommendations on improving their employment. *Journal of Vocational Rehabilitation, 49*(1), 67–78. <https://doi.org/10.3233/JVR-180955>

Consumer Technology Association. (2018). *Future of work - CTA 2018 survey*. https://www.cta.tech/cta/media/Membership/PDFs/FutureofWork_WhitePaper_Print10-12.pdf

Creswell, J. (2007). *Qualitative inquiry & research design: Choosing among five approaches* (Second ed.). Sage Publications.

Creswell, J. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fourth edition, International student ed.). SAGE.

Day, R., & Allen, T. D. (2004). The relationship between career motivation and self-efficacy with protégé career success. *Journal of Vocational Behavior, 64*(1), 72–91. [https://doi.org/10.1016/S0001-8791\(03\)00036-8](https://doi.org/10.1016/S0001-8791(03)00036-8)

- Dezsö, C. L., & Ross, D. G. (2012). Does female representation in top management improve firm performance? A panel data investigation. *Strategic Management Journal*, 33(9), 1072–1089. <https://doi.org/10.1002/smj.1955>
- Ducharme, G., Beeman, P., DeMarasse, R., & Ludlum, C. (1994). *Building community one person at a time*. In Bradley, V.J., Ashbaugh, J.W., & Blaney, B.C. (Eds.), *Creating individual supports for people with developmental disabilities: A mandate for change at many levels* (pp 347-360). P.H. Brookes.
- Eaves, L. C., & Ho, H. H. (2008). Young adult outcome of autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 38(4), 739–747. <https://doi.org/10.1007/s10803-007-0441-x>
- Fagenson, E. A. (1992). Mentoring—Who needs it? A comparison of protégés' and nonprotégés' needs for power, achievement, affiliation, and autonomy. *Journal of Vocational Behavior*, 41(1), 48–60. [https://doi.org/10.1016/0001-8791\(92\)90038-2](https://doi.org/10.1016/0001-8791(92)90038-2)
- Fernandez, J. (1981). *Racism and sexism in corporate life: Changing values in American business*. Lexington Books.
- Fieldhouse, M. (2017). *Implementing a neurodiversity program*. <https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1025&context=dandelionprogram>
- Flower, R. L., Hedley, D., Spoor, J. R., & Dissanayake, C. (2019). An alternative pathway to employment for autistic job-seekers: a case study of a training and assessment program targeted to autistic job candidates. *Journal of Vocational*

Education & Training, 71(3), 407–428.

<https://doi.org/10.1080/13636820.2019.1636846>

Gilley, J., & Eggland, S. (1989). *Principles of human resource development*. Reading, MA: Addison-Wesley Publishing

Goldenberg, T. (n.d.). *For autistic soldiers, army service opens door to integration*.

<http://www.timesofisrael.com/for-autistic-soldiers-army-service-opens-door-to-integration/>

Grandin, T. (1999). *Choosing the right job for people with autism or Asperger's syndrome*. <https://www.iidc.indiana.edu/irca/articles/choosing-the-right-job-for-people-with-autism-or-aspergers-syndrome.html>

Grandin, T., Duffy, K., & Attwood, T. (2008). *Developing talents: Careers for individuals with Asperger syndrome and high-functioning autism* (Updated, expanded ed.). Autism Asperger Pub.

Halvorson, H. G., & Rock, D. (2015). *Beyond bias*. Strategy+business.

<http://www.strategy-business.com/article/00345>

Harrington, P. E., & Fogg, N. P. (2010, May). *Disability and the great recession: The labor market impacts of the economic recession on persons with disabilities*.

ADA National Network Research Conference. Alexandria, VA.

Harvard Medical School. (2014). *Asperger's syndrome*. Harvard Health.

https://www.health.harvard.edu/newsletter_article/aspergers-syndrome

Hedley, D., Uljarević, M., Cameron, L., Halder, S., Richdale, A., & Dissanayake, C.

(2017). Employment programmes and interventions targeting adults with autism

spectrum disorder: A systematic review of the literature. *Autism*, 21(8), 929–941.

<https://doi.org/10.1177/1362361316661855>

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

<https://doi.org/10.1177/1088357608329827>

Herring, C. (2009). Does diversity pay?: Race, gender, and the business case for diversity. *American Sociological Review*, 74(2), 208–224.

Hillier, A., Fish, T., Cloppert, P., & Beversdorf, D. (2007). Outcomes of a social and vocational skills support group for adolescents and young adults on the autism spectrum. *Focus on Autism and Other Developmental Disabilities*, 22(2), 107–115.

Hurlbutt, K., & Chalmers, L. (2004). Employment and adults with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities*, 19(4), 215–222.

IC Insights. (2019). *Intel to reclaim number one semiconductor supplier ranking in 2019*.

IC Insights. [https://www.icinsights.com/news/bulletins/Intel-To-Reclaim-](https://www.icinsights.com/news/bulletins/Intel-To-Reclaim-Number-One-Semiconductor-Supplier-Ranking-In-2019--/#:~:text=However%2C%20with%20a%20forecasted%2034,TSMC)%20and%20four%20fables%20companies)

[Number-One-Semiconductor-Supplier-Ranking-In-2019--](https://www.icinsights.com/news/bulletins/Intel-To-Reclaim-Number-One-Semiconductor-Supplier-Ranking-In-2019--/#:~:text=However%2C%20with%20a%20forecasted%2034,TSMC)%20and%20four%20fables%20companies)

[/#:~:text=However%2C%20with%20a%20forecasted%2034,TSMC\)%20and%20](https://www.icinsights.com/news/bulletins/Intel-To-Reclaim-Number-One-Semiconductor-Supplier-Ranking-In-2019--/#:~:text=However%2C%20with%20a%20forecasted%2034,TSMC)%20and%20four%20fables%20companies)

[four%20fables%20companies](https://www.icinsights.com/news/bulletins/Intel-To-Reclaim-Number-One-Semiconductor-Supplier-Ranking-In-2019--/#:~:text=However%2C%20with%20a%20forecasted%2034,TSMC)%20and%20four%20fables%20companies)

Intel. (2020). *2020-21 Corporate responsibility report*.

<http://csrreportbuilder.intel.com/pdfbuilder/pdfs/CSR-2020-21-Full-Report.pdf>

Intel. (2021). *Intel Code of Conduct*.

<https://www.intel.com/content/dam/www/public/us/en/documents/corporate-information/code-of-conduct-eng.pdf>

Jain-Link, P., & Kennedy, J.T. (2019). Why people hide their disabilities at work.

Harvard Business Review. <https://hbr.org/2019/06/why-people-hide-their-disabilities-at-work>

Johnston, W. B., Packer, A. E., (1987). *Workforce 2000: Work and workers for the 21st century*. United States Department of Labor, Hudson Institute.

Jones, W. P., & Kottler, J. A. (2005). *Understanding research: Becoming a competent and critical consumer*. Pearson Merrill Prentice Hall.

Klein, H. J., Polin, B., & Sutton, K. L. (2015). Specific onboarding practices for the socialization of new employees. *International Journal of Selection and Assessment*, 23(3), 263–283. <https://doi.org/10.1111/ijsa.12113>

Kram, K. E. (1983). Phases of the mentor relationship. *The Academy of Management Journal*, 26(4), 608–625. <https://doi.org/10.2307/255910>

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

Lengnick-Hall, M. L., Gaunt, P. M., & Kulkarni, M. (2008). Overlooked and underutilized: People with disabilities are an untapped human resource. *Human Resource Management*, 47(2), 255–273. <https://doi.org/10.1002/hrm.20211>

Lindsay, S., & Munson M. (2018). *Mentoring for youth with disabilities: National mentoring resource center population review*.

http://nationalmentoringresourcecenter.org/images/PDF/Mentoring_for_Youth_with_Disabilities_Population_Review.pdf

Liu, K. P. Y., Wong, D., Chung, A. C. Y., Kwok, N., Lam, M. K. Y., Yuen, C. M. C., Arblaster, K., & Kwan, A. C. S. (2013). effectiveness of a workplace training programme in improving social, communication and emotional skills for adults with autism and intellectual disability in Hong Kong - A Pilot study.

Occupational Therapy International, 20(4), 198–204.

<https://doi.org/10.1002/oti.1356>

Loiacono, E. T., & Ren, H. (2018). Building a neurodiverse high-tech workforce. *MIS Quarterly Executive*, 17(4), 263–279.

<https://doi.org/doi.org/10.17705/2msqe.00001>

Maenner, M. J., Shaw, K. A., Baio, J., Washington, A., Patrick, M., DiRienzo, M., Christensen, D. L., Wiggins, L. D., Pettygrove, S., Andrews, J. G., Lopez, M., Hudson, A., Baroud, T., Schwenk, Y., White, T., Rosenberg, C. R., Li-Ching Lee, Harrington, R. A., Huston, M., & Hewitt, A. (2020). Prevalence of autism spectrum disorder among children aged 8 years – autism and developmental disabilities monitoring network, 11 sites, United States, 2016. *Morbidity and Mortality Weekly Report: Surveillance Summaries*, 69(4), 1–12.

<https://doi.org/10.15585/mmwr.ss6904a1>

Mayo Clinic. (2014). *Autism spectrum disorder*. <http://www.mayoclinic.org/diseases-conditions/autism-spectrum-disorder/basics/definition/con-20021148>

Merriam, S. B. (2002). *Qualitative research in practice: Examples for discussion and analysis* (1st ed.). Jossey-Bass.

Microsoft Global Diversity and Inclusion. (2019). *Our inclusive hiring programs.*

<https://www.microsoft.com/en-us/diversity/inside-microsoft/cross-disability/hiring.aspx#coreui-heading-sp7tqqo>

Microsoft. (2015, April 3). *Microsoft announces pilot program to hire people with*

autism. <http://blogs.microsoft.com/on-the-issues/2015/04/03/microsoft-announces-pilot-program-to-hire-people-with-autism/#sm.001bhxep5n2id5i10hh1kwtq381zz>

Milton, D., Sims, T., Dawkins, G., Martin, N., & Mills, R. (2017) The development and evaluation of a mentor training programme for those working with autistic adults.

Good Autism Practice, 18 (1) 25–33.

Mitchell, P. (2001). On-the job coaching: A changing world. *Training Journal, 16.*

Moore, J. R., Hanson, W. R., & Maxey, E. C. (2020). Disability inclusion: Catalyst to adaptive organizations. *Organization Development Journal, 38*(1), 89–105.

Morris, M. R., Begel, A., & Wiedermann, B. (2015). Understanding the challenges faced

by neurodiverse software engineering employees: Towards a more inclusive and productive technical workforce. *Proceedings of the 17th International ACM SIGACCESS Conference on Computers & Accessibility, 173–184.*

Murakami, Y. (1999). Job coaching for persons with mental disabilities. *Work, 12*(2), 181-188.

National Alliance on Mental Illness. (2014). *Mental illness: NAMI report deplores 80 percent unemployment rate; state rates and ranks listed.*

<https://www.nami.org/Press-Media/Press-Releases/2014/Mental-Illness-NAMI-Report-Deplores-80-Percent-Un>

- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*.
<https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>
- National Symposium on Neurodiversity at Syracuse University. (2011). *What is neurodiversity?* <https://neurodiversitysymposium.wordpress.com/what-is-neurodiversity>
- Nelson, O. (2017). Potential for progress: Implicit bias training's journey to making change. *Joseph Wharton Scholars*.
https://repository.upenn.edu/joseph_wharton_scholars/31
- Ohl, A., Sheff, M. G., Little, S., Nguyen, J., Paskor, K., & Zanjirian, A. (2017). Predictors of employment status among adults with autism spectrum disorder. *Work*, 56(2), 345–355. <https://doi.org/10.3233/WOR-172492>
- Pisano, G.P., & Austin, R.D. (2016). *Hewlett Packard Enterprise: The Dandelion program*. HBS No. 9-617-016. Boston, MA: Harvard Business School Publishing.
- Roux, A. M., Shattuck, P. T., Cooper, B. P., Anderson, K. A., Wagner, M., & Narendorf, S. C. (2013). Postsecondary employment experiences among young adults with an autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(9), 931-939. <https://doi.org/10.1016/j.jaac.2013.05.019>
- Roux, A. M., Shattuck, P. T., Rast, J. E., Rava, J. A., & Anderson, K. A. (2015). *National autism indicators report: Transition into young adulthood*. Philadelphia, PA: Life

Course Outcomes Research Program, A.J. Drexel Autism Institute, Drexel University.

Rubin, H., & Rubin, I. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed.). Thousand Oaks, California: SAGE.

Sali, L. (2019). *Roim-Rachok cooperation with INTEL* [Video file].

<https://www.youtube.com/watch?v=L-6zCxS3h98>

SAP to work with Specialisterne to employ people with autism. (2013, May 21). SAP.

<https://news.sap.com/2013/05/sap-to-work-with-specialisterne-to-employ-people-with-autism/>

Sherbin, L., & Kennedy, J.T. (2017). *Disabilities and inclusion.*

<https://coqual.org/reports/disabilities-and-inclusion/>

SHRM. (2011). *Survey findings: Onboarding practices.*

<https://www.slideserve.com/herne/shrm-survey-findings-onboarding-practices>

Snell, A. (2006). Researching onboarding best practice. *Strategic HR Review*, 5(6), 32-35.

Soergel, A. (2016, March 29). *America needs more skilled immigrant workers.* US News

& World Report. [http://www.usnews.com/news/articles/2016-03-29/study-](http://www.usnews.com/news/articles/2016-03-29/study-american-economy-hampered-by-limits-on-skilled-immigrant-workers)

[american-economy-hampered-by-limits-on-skilled-immigrant-workers](http://www.usnews.com/news/articles/2016-03-29/study-american-economy-hampered-by-limits-on-skilled-immigrant-workers)

Stewart, M. E., Barnard, L., Pearson, J., Hasan, R., & O'Brien, G. (2006). *Presentation of*

depression in autism and Asperger syndrome: A review. *Autism*, 10(1), 103–116.

<https://doi.org/10.1177/1362361306062013>

- Thompson, E., & Miller, D. J. (2018). *Neurodiversity at work*. Chartered Institute of Personnel and Development. https://www.cipd.co.uk/Images/neurodiversity-at-work_2018_tcm18-37852.pdf
- Tuv, E., Guven, M., Ennis, P., & Lee, D. H. L. (2018, November). *Faster, more accurate defect classification using machine vision*. <https://www.intel.com/content/www/us/en/it-management/intel-it-best-practices/faster-more-accurate-defect-classification-using-machine-vision-paper.html?wapkw=more%20accurate%20defect%20classification>
- Twaronite, K. (2019, May 10). *How neurodiversity is driving innovation from unexpected places*. https://www.ey.com/en_us/diversity-inclusiveness/how-neurodiversity-is-driving-innovation-from-unexpected-places
- U. S.. Equal Employment Opportunity Commission. (n.d.). *Title VII of the Civil Rights Act of 1964: U.S. Equal Employment Opportunity Commission*. <https://www.eeoc.gov/statutes/title-vii-civil-rights-act-1964>
- U.S. Bureau of Labor Statistics. (2011). *Labor force characteristics by race and ethnicity, 2010*. http://www.bls.gov/opub/reports/race-and-ethnicity/archive/race_ethnicity_2010.pdf
- U.S. Bureau of Labor Statistics. (2016, February 10). *Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity*. <https://www.bls.gov/cps/aa2015/cpsaat11.htm>
- U.S. Bureau of Labor Statistics. (2020, February 26). *Persons with a disability: Labor force characteristics summary*. <https://www.bls.gov/news.release/disabl.nr0.htm>

U.S. Department of Education. (2018). *The condition of education 2018*.

https://nces.ed.gov/programs/coe/indicator_cbc.asp

United States Census Bureau. (2016). *Annual estimates of the resident population by sex, race, and Hispanic origin for the United States, states, and counties: April 1, 2010 to July 1, 2015*.

<http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

United States Department of Labor. (n.d.). *Diversity and Inclusion*.

<https://www.dol.gov/agencies/odep/program-areas/employers/diversity-inclusion>

Wolla, S. A. (2014). The Economics of immigration: A Story of substitutes and complements. *Page One Economics*, 5.

World Health Organization, & World Bank. (2011). *World report on disability*. Geneva, Switzerland: World Health Organization.

Yin, R. K. (2009). *Case study research: design and methods* (4th ed., Vol. 5). Sage Publications.

Appendix A: Human Subjects Review Committee Approval

GEORGE FOX UNIVERSITY HSRC INITIAL REVIEW QUESTIONNAIRE

2201140
Page 8

Title: Onboarding Autism Employees in Technology Industry

Principal Researcher(s): Heung-For Cheng


Date application completed: 11/07/2020

(The researcher needs to complete the above information on this page)

COMMITTEE FINDING:

For Committee Use Only

- (1) The proposed research makes adequate provision for safeguarding the health and dignity of the subjects and is therefore approved.
- (2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the **HSRC** on a _____ basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.
- (3) The proposed research evidences some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:
- (4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.



Chair or designated member

11-30-20

Date

Appendix B: Participant Information Sheet

1. Study Title:

Discovery of best onboarding practices for employees with Autism in technology industry.

2. Invitation

You are being invited to take part in a research study in understanding how to onboard new employees with Autism successfully in technology industry. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information and discuss it with your manager and family, if you wish. Please ask if there is anything you do not understand or if you would like more information. Take time to decide if you wish to take part.

3. What is the purpose of the study?

The purpose of this research is to find out how an organization in the technology industry with an autism hiring program can onboard their employees with Autism successfully. By finding out the best onboarding practices, technology companies can retain these talents and help society improve the employment situation of people with Autism.

We want to know:

1. What is the strategy and specific activities that technology companies implement to onboard new employees with Autism?
2. Who are the people and what are their roles in the workplace circle of support of new employees with Autism?
3. What are the motivations of these people in helping employees with Autism and how do they improve the onboarding experience of these employees?
4. What are the Autism awareness trainings offered to the managers and employees who work with new employees with Autism?
5. How do the Autism awareness trainings improve the knowledge and skills of the people in the workplace circle of support as they help with the onboarding of new employees with Autism?

4. Why have I been chosen?

You have been chosen to take part because you are currently managing, coaching, supervising, or mentoring an employee with Autism, or you are an employee with Autism.

5. Do I have to take part?

You do not have to take part; it is your decision. If you decide to take part, you will be given this information sheet and asked to sign a consent form. If you decide to take part, you can still withdraw from the study at any time and you will not need to give a reason. If you decide not to take part, or you want to withdraw from the study, this will not affect your rights and status at Intel Corporation.

6. What will happen to me if I take part?

You will be interviewed by the researcher via Teams meeting during your work hours and workplace. The researcher will provide you a list of potential interview questions ahead of the interview. During the interview, the researcher will use them as guided questions. Based on your answers, the researcher may ask some questions outside this list. If you don't feel comfortable answering certain questions, please let the researcher know. You don't have to answer every question in the interview. Also, you do not need to turn on the video camera if you do not want to during the interview.

The researcher will record what you say using the video recording feature in Teams. This is to help the researcher remember everything you say. The interview will then be transcribed into a document and you will have a chance to review and modify the transcript before it will be used for data analysis and findings.

7. What are the possible disadvantages and risks of taking part?

During the interview you might feel tired and frustrated. You can have regular breaks if you feel tired and you can stop at any time if you want

8. What are the possible benefits of taking part?

This will allow Intel to apply the learning in the Intel Israel Autism Hiring Program to other Intel sites and help improve the employment situation for people with Autism in the technology industry around the world.

9. What if something goes wrong?

This research does not involve any special risks. If you want to make a complaint about how people have approached you or treated you during the project, please contact Yaara Alon at Intel Corporation, telephone +972 (54) 788-6870 or Dr. Justine Haigh at George Fox University, telephone +1 (503) 554-2808.

10. Will my involvement in this research be kept confidential?

All information we collect about you during the project will be kept strictly confidential. Your name will not be shown in any reports.

11. What will happen to the results of the research study?

This study is the dissertation research of the researcher who is an engineering manager at Intel Corporation and doctoral candidate of the George Fox University, Portland, Oregon, U.S.A. The results will be published in a report by the researcher. This report will be submitted to the George Fox University and shared with the management of Intel Corporation. You can obtain a copy of the report if you or your family or friends want to read it. The results of the study may also be used in articles written later for scientific journals. The information we collect may be used for other research studies.

12. Who is organizing the research?

The research is being organized by Heung-for Cheng, a graduate student in the Doctor of Business Administration program in George Fox University.

13. Who has ethically reviewed the project?

This research has been ethically approved by the George Fox University's ethics review procedure.

14. Contact for further information

If you have any questions about this research, please contact:

Heung-for Cheng on telephone +1 (503) 781-4711, or via email, at

<mailto:hcheng15@georgefox.edu> or <mailto:heung-for.cheng@intel.com>

Thank you very much for considering taking part in this research. You will be given a copy of this participant information sheet and a signed consent form to keep.

Appendix C: Research Subject Informed Consent Form

1. PURPOSE OF THIS RESEARCH STUDY

You are being invited to take part in a research study designed to understand how an organization in the technology industry with an autism hiring program can onboard their employees with Autism successfully. By identifying the best onboarding practices, technology companies can retain these talents and help society improve the employment situation of people with Autism.

We want to know:

- What is the strategy and specific activities that technology companies implement to onboard new employees with Autism?
- Who are the people and what are their roles in the workplace circle of support of new employees with Autism?
- What are the motivations of these people in helping employees with Autism and how do they improve the onboarding experience of these employees?
- What are the Autism awareness trainings offered to the managers and employees who work with new employees with Autism?
- How do the Autism awareness trainings improve the knowledge and skills of the people in the workplace circle of support as they help with the onboarding of new employees with Autism?

2. PROCEDURES

You will be interviewed by the researcher via Teams meeting during your work hour and workplace for one hour. The researcher will provide you a list of potential interview questions ahead of the interview. During the interview, the researcher will use them as guided questions. Based on your answers, the researcher may ask some questions outside this list. If you do not feel comfortable to answer certain questions, please let the researcher know. You do not have to answer every question in the interview. Also, you do not need to turn on the video camera if you do not want to during the interview.

After the interviews, in case that the researcher needs to clarify from you the information you provided in the interview, the researcher may use email or a 30-minutes follow-up interview to discuss your responses with you within 14 days of the interview.

If the researcher is invited to perform direct observation in virtual group meetings, the researcher will join as passive participant in the meetings and take notes as data collection for the research.

The interview and the direct observation will then be transcribed into a document. You will have a chance to review and modify the transcript within 30 days of the interview before it will be used for data analysis and findings.

The meetings of the interviews and the direct observations may be video recorded if the participants consent to do so. The reason of recording the meetings is that in a qualitative case study research, it is important to note down the exact wordings of the participants and use them for data analysis. In addition, the result findings may need to use the exact

quotes from the participants as part of the logical reasoning. Without recording the meetings and replaying the recording to get the accurate transcripts, the data analysis and result findings may be inaccurate. The video recordings would be destroyed within 12 months after the recordings are created.

For the video recordings collected during the interviews and the direct observations in remote meetings, the following procedure is deployed to secure the access of the recordings:

1. The Teams meeting will be used to conduct the interviews and the direct observations remotely.
2. The participants will be asked for permission to use recordings of the meetings.
3. If the participants consent, the researcher will turn on the video recording feature in Teams.
4. After the meeting ends, Teams will save the recordings in each Teams meeting site.
5. The researcher will use the Teams' "Meeting Options" to only allow the researcher to go into the Teams meeting lobby. No one else will be allowed to go into the meeting lobby to view the video recordings without the researcher's permission.
6. The researcher will then use the video to transcribe the meetings.
7. Within 12 months from the interviews and the direct observations of remote meetings, the researcher will delete the video recordings.
8. The transcript will be password-protected and stored in the researcher's encrypted hard drives.

3. POSSIBLE RISKS OR DISCOMFORT

The study process should involve minimal risks for participants. Participants are voluntary and over 21-years-old. Possible risks include:

- There could be some emotional vulnerability for the autism employees because they will be sharing their personal experiences.
- Since the researcher in the U.S. and the participants in Israel are in different time-zones, and the interviews will take approximately one hour per participant, there could be some inconvenience of time involvement.
- During the interview process the autism employees might get tired or bored. If this is the case, the participant may take regular breaks or stop at any time.
- The confidential information provided by the interviewees may be exposed to people other than the research team. This can be mitigated through data access restriction to only the researcher and the direct advisors at George Fox University.

Any new information developed during the study that may affect your willingness to continue participation will be communicated to you.

4. OWNERSHIP AND DOCUMENTATION OF SPECIMENS

Not applicable in this qualitative case study research

5. POSSIBLE BENEFITS

This research will allow Intel to apply the learning in the Intel Israel Autism Hiring Program to other Intel sites and help improve the employment situation for people with Autism in the technology industry around the world.

6. FINANCIAL CONSIDERATIONS

There is no financial cost or compensation for you to participate in this research

7. AVAILABLE TREATMENT ALTERNATIVES

Not Applicable

8. AVAILABLE MEDICAL TREATMENT FOR ADVERSE EXPERIENCES

Not applicable because this study involves minimal risk to cause adverse experiences that would require medical treatment.

9. CONFIDENTIALITY

Your identity in this study will be treated as confidential. The results of the study, including collected data, may be published for scientific purposes but will not give your name or include any identifiable references to you. The researcher will protect your identity by anonymizing your name in the study.

However, any records or data obtained as a result of your participation in this study may be inspected by the sponsor, by any relevant governmental agency, by the Institutional Review Board of George Fox University, or by the persons conducting this study, provided that such inspectors are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law or a court of competent jurisdiction. These records will be kept private in so far as permitted by law.

10. TERMINATION OF RESEARCH STUDY

You are free to choose whether or not to participate in this study. There will be no penalty or loss of benefits to which you are otherwise entitled if you choose not to participate. You will be provided with any significant new findings developed during the course of this study that may relate to or influence your willingness to continue participation. In the event you decide to discontinue your participation in the study, there will not be any consequence to your current job status in your workplace.

Please notify Heung-for Cheng by phone or email (see contact information below) of your decision so that your participation can be orderly terminated.

In addition, your participation in the study may be terminated by the investigator without your consent under the circumstance that the research study is being cancelled. It may be necessary for the sponsor of the study to terminate the study without prior notice to, or consent of, the participants in the event that the study is in conflict of the interest of sponsor's organization.

11. AVAILABLE SOURCES OF INFORMATION

Any further questions you have about this study will be answered by the Principal Investigator:

Name:

Phone Number:

Email:

Any questions you may have about your rights as a research subject will be answered by:

Name:

Phone Number:

Email: mailto:

In case of a research-related emergency, call:

Day Emergency Number:

Night Emergency Number:

12. AUTHORIZATION

I have read and understand this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form. I voluntarily choose to participate, but I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study. I further understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws.

Participant Name (Printed or Typed):

Date:

Participant Signature:

Date:

Principal Investigator Signature:

Date:

Signature of Person Obtaining Consent:

Date:

Appendix D: Field Interview Questions

Field Interview Questions: Managers

Background Questions

- Can you tell me something about your background, your department, your group, and demographic of your ASD employees?
 - Employee Name (will assign a pseudo name), gender, age (range is ok), education, job title
- How many years have your ASD employees worked for you? Why do you decide to recruit ASD employees?

ASD Employee Recruitment & Onboarding Questions

- Why do you group hire ASD employees?
- How do you recruit ASD employees?
- How do you onboard new ASD employees?
 - What is the strategy behind the onboarding process of new ASD employees?
 - What are the specific activities in the onboarding process?
- What are the onboarding challenges and how do you overcome them?
- How do you improve the onboarding process?

Workplace Circle of Support (WCOS) Questions

- Who are in the workplace circle of support (WCOS) of a new ASD employee?
- What are their roles in helping a new ASD employee onboard?
- How do you interact with other people in the circle of support of a new ASD employees (e.g., other managers, other job coaches, other mentors, parents, etc.)?
- Why do you like to manage ASD employees?
- How does the company recruit you to manage ASD employees? What are the criteria in selection?

Questions on How to Help ASD Employees

- How often do you meet with your ASD employees individually?
- What are the topics that you and your ASD employees discuss?
- How do you match project assignments with your ASD employees?
- How do you communicate project goals with your ASD employees?
- How do you give assignment instructions to your ASD employees?
- How do you evaluate the performance of your ASD employees?
- How do you foster collaboration between ASD employees and non-ASD employees?

- How do you guide your ASD employees in their careers, such as career advancement and skill development?
- How do you help ASD employees form networks outside your organization?
- How do you motivate and recognize ASD employees?
- How do you help ASD employees handle external disturbances, such as project schedule changes?
- What do you do differently as a manager between non-ASD employees and ASD employees? Why do you make those changes?
- What are some of the onboarding experiences of your ASD employees? What lessons have you learned from those experiences to improve the onboarding process?
- What are the key factors to onboard ASD employees?
- How do you plan to improve the onboarding experience of ASD employees in future?

Awareness Training Questions

- What are the ASD awareness training available to the WCOS?
- How do the ASD knowledge and new learning help people in the circle of support improve the onboarding experience of ASD employees?
- What are the soft skill and technical skill trainings available to the ASD employees?
- How do the soft skill and technical skill trainings help the onboarding experience of ASD employees?

Questions on Impact of Onboarding Success

- What are some of the benefits if new employees onboard successfully?
- How does the onboarding success relate to the retention of ASD employees?
- What is the retention rate of ASD employees in your team and in your company?

Field Interview Questions: Job Coaches

Background Questions

- Can you tell me something about your background, your department, your group, and demographic of your ASD employees?
 - Employee Name (will assign anonymous ID#), gender, age (range is ok), education, job title

ASD Employee Recruitment & Onboarding Questions

- Why does your group hire ASD employees?
- How do you recruit ASD employees?
- How do you onboard new ASD employees?
 - What is the strategy behind the onboarding process of new ASD employees?
 - What are the specific activities in the onboarding process?
- What are the onboarding challenges and how do you overcome them?

- How do you improve the onboarding process?

Workplace Circle of Support (WCOS) Questions

- Who are in the workplace circle of support (WCOS) of a new ASD employee?
- What are their roles in helping a new ASD employee with onboarding?
- How do you interact with other people in the circle of support of a new ASD employees (e.g., other managers, other job coaches, other mentors, parents, etc.)?
- Why do you like being a job coach to the ASD employees?
- How does the company recruit you to be the job coach to ASD employees? What are the criteria used in selection?

Questions on How to Help ASD Employees

- What are the areas (e.g., time management, collaboration, and communication) you need to coach ASD employees?
- How often do you meet with your ASD employees individually?
- How do you prepare to coach an ASD employee?
- What do you talk about in your meetings?
- How do you help the employee learn through their mistakes? How do you point out their mistakes?
- What opportunities does the employee have to practice their learning?
- How do you work with the manager and the supervisor/mentor to help the ASD employee onboard?
- What are the challenges the ASD employees encounter during onboarding? How do you help him or her?
- What are the key factors to onboard ASD employees?
- How do you plan to improve the onboarding experience of ASD employees in future?

Awareness Training Questions

- What are the ASD awareness trainings available to the WCOS?
- How do the ASD knowledge and new learning help people in the circle of support improve the onboarding experience of ASD employees?
- What are the soft skill and technical skill trainings available to the ASD employees?
- How do the soft skill and technical skill trainings help the onboarding experience of ASD employees?

Question on Impact of Onboarding Success

- What are some of the benefits if new employees onboard successfully?
- How does the onboarding success relate to the retention of ASD employees?
- What is the retention rate of ASD employees in your team and in your company?

Field Interview Questions: Supervisors / Mentors

Background Questions

- Can you tell me something about your background, your department, your group, and demographic of your ASD employees?
 - Employee Name (will assign anonymous ID#), gender, age (range is ok), education, job title

ASD Employee Recruitment & Onboarding Questions

- Why does your group hire ASD employees?
- How do you recruit ASD employees?
- How do you onboard new ASD employees?
 - What is the strategy behind the onboarding process of new ASD employees?
 - What are the specific activities in the onboarding process?
- What are the onboarding challenges and how do you overcome them?
- How do you improve the onboarding process?

Workplace Circle of Support (WCOS) Questions

- Who are in the workplace circle of support (WCOS) of a new ASD employee?
- What are their roles in helping a new ASD employee with onboarding?
- How do you interact with other people in the circle of support of a new ASD employees (e.g., other managers, other job coaches, other mentors, parents, etc.)?
- Why do you want to be a supervisor/mentor of the ASD employees?
- How does the company recruit you to be a supervisor/mentor to ASD employees? What are the criteria used in selection?

Questions on How to Help ASD Employees

- How often do you meet with your ASD employees?
- What do you talk about in your meeting?
- How do you role model and introduce corporate culture and values to the ASD employees?
- How do you help the ASD employees to develop new skills required in workplace, a professional network at work?
- How do you help the ASD employees in their career development?
- How do you give feedback to your ASD employees?
- What are the challenges the ASD employees encounter during onboarding? How do you help him or her?
- How do you envision the next step in your supervising/mentoring your ASD employees?
- What are the key factors to onboard ASD employees?
- How do you plan to improve the onboarding experience of ASD employees in future?

Awareness Training Questions

- What are the ASD awareness training available to the WCOS?

- How do the ASD knowledge and new learning help people in the circle of support improve the onboarding experience of ASD employees?
- What are the soft skill and technical skill trainings available to the ASD employees?
- How do the soft skill and technical skill trainings help the onboarding experience of ASD employees?

Questions on Impact of Onboarding Success

- What are some of the benefits if new employees onboard successfully?
- How does the onboarding success relate to the retention of ASD employees?
- What is the retention rate of ASD employees in your team and in your company?

Field Interview Questions: ASD employees

Explain to the ASD employees the purpose of this research.

Explain to the ASD employees that the interview questions are for drawing out their onboarding experience at Intel.

Explain to the ASD employees that the questions have no right or wrong answers.

s

Background Questions

- Can you tell me about:
 - your name,
 - your education background,
 - your interests and hobbies?
- What is your position/title at Intel?
- What do you do in your job at Intel?
- Is this the same job as when you were hired? If not, what are other jobs you have worked at Intel?

ASD Employee Recruitment & Onboarding Questions

- Why do you like about working at Intel?
- How did you join Intel? When?
- What skills do you use in your job at Intel?
- What was your experience as a new Intel employee when you first joined Intel?
 - How do you work with your coworkers?
 - Do your coworkers know that you have autism?
 - What were some difficulties you encountered on the new job?
 - How do you overcome the difficulties?

Workplace Circle of Support (WCOS) Questions

- Who have helped you in learning how to do your new job?
- How did they help you?
- How are your parents involved in your work circle?
- What are some of the difficulties to working with this group of people who support you to learn your new job?

Questions on how to get help in order to onboard successfully

- How often do you meet with your manager individually?
- What are the topics that you and your manager discuss?
- How often do you meet with your supervisor individually?
- What are the topics that you and your supervisor discuss?
- How often do you meet with your job coach individually?
- What are the topics that you and your job coach discuss?
- How do you receive your work assignments and instructions?
- How do you communicate a project's status?
- Whom do you get help from when you encounter roadblock at work? How do they help you?
- What are some challenges when you work with your peers who do not have autism? How do you resolve those?
- What are some other helps and accommodations that you wish you would get?
- What are your career goals?
- How does your manager guide you toward your career goals?
- How do you like your managers and coworker to recognize your good work? Recognition Award? Praise?
- How do you handle changes, such as changes to a project's schedule or priority?
- What are the important elements that can help new employees with autism to ramp up in their new job successfully?
- What are your suggestions for helping new employees with autism learn their new job faster?

Training Questions

- What are the soft skill and technical trainings that you have received to help perform your job?
- How does the learning from these trainings help you perform the job?