Development of a framework for successful Open Employment (OE) for people with disabilities

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Declaration:

I, Vimallan Manokara, certify that this work:

Development of a framework for successful 'Open Employment (OE) for people with disabilities

Is original and has not been submitted for a higher degree in any other university or other tertiary institution.

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Abstract

While significant efforts have been made in the placement of persons with disabilities in open employment (OE), little is known currently about what are the characteristics that contribute to sustainable and successful OE. Existing literature posits that caregivers and employers as well as the person's own attributes are pertinent factors to successful OE. This study aimed to investigate these areas further, to identify important characteristics of successful OE for persons with disabilities (with a particular focus on intellectual disabilities) for the purpose of developing a framework for sustainable open employment for persons with disabilities. Semi-structured interviews were conducted with three participant groups - Persons, caregivers and employers. The interview data were then thematically analysed. The results show four major characteristics and 20 sub-characteristics that are important in successful OE. Survey data from job coaches also yielded four broad factors for open employment sustainability. These specific characteristics provided the structure for the development of a framework for sustainable open employment for persons with disabilities in OE. Policy, practice and research implications are discussed.

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Preface

The disability employment landscape globally has been faced with challenges that present a threat to persons with disabilities securing and sustaining employment in the open labour market. While different models have been applied and evaluated when it comes to placement of persons with disabilities in jobs, there is still much to be done to understand how they can maintain their jobs in the long run. Further, given the spectrum of the different disability sub-types- physical, sensory, intellectual and developmental, it makes it an even greater challenge for job coaches and employers to understand what they need to do to recruit, support and sustain persons with different disabilities in their jobs. Additionally, the disability employment landscape in a country and the prospects for persons with disabilities in a country to find and maintain jobs in the open labour market is inevitably influenced by the general employment and economic state within the country, region as well as the world. For example, the COVID-19 pandemic has resulted in certain job industries being hit significantly, and most of the industries that are negatively impacted tend to be those that have traditionally been more open to employing persons with disabilities e.g. food and beverage, retail, hotel. As such, there is a need to understand how to support job coaches and employers systematically so that jobs for persons with disabilities can continue to be created and sustained in a more future-proof and resilient manner. This study will pay particular focus to the Singapore disability employment scene.

Given the above-mentioned challenges, this study's primary aim is to develop a framework for sustainable and successful open employment for persons with disabilities. The secondary aim is to explore the feasibility of developing a diagnostic

instrument to help job coaches in assessing the sustainability of a person with disability for a particular job in the open labour market.

The study used a mixed method approach, allowing for triangulation of data from interviews and surveys. Interviews were conducted with employees with disabilities, their caregivers and their employers to explore the depth of experiences from each group. Surveys were conducted with job coaches who supported both persons with disabilities still maintaining employment as well as those who had fallen out of their jobs. Thematic analyses and factor analysis were used to analyse the interview and survey data respectively. Key sustainability areas and the specific factors that fell in each area were obtained. Independent t-tests were used to compare scores of those who were successfully sustaining employment and those who had fallen out. Binary logistic regression analyses were used to predict employment outcome and Receiver Operating Characteristic (ROC) analyses were used to explore possible cut-off score for predicting successful open employment.

The value-add of the framework to job placement and job support for persons with disabilities in the open labour market as well as and the possible benefits off the potential diagnostic tool as an enabler of the framework are discussed at the practice, policy and research levels. Strengths and limitations of the study are discussed.

The following outline provides a succinct overview of each chapter:

Chapter one: This chapter provides the introduction to the study by introducing the synopsis of key historical developments in the general employment sphere, background on disability employment, the international landscape on disability employment, as well as the Singapore landscape on disability employment.

Chapter two: This chapter discusses the conceptual model on which the discussions and arguments in the subsequent chapters of thesis are based on. It reviews the different disability models and discusses Quality of Life (QoL) as the broad outcome for the conceptual model. Additionally, it critically reviews the related concepts that support the independent living and post-modern existential models of disability. Finally, it discusses the ecological systems theory as the frame for the conceptual model with best practice enablers of QoL supporting it.

Chapter three: The background, principal considerations, strengths and limitations of existing Open Employment (OE) models in disability are reviewed. Specifically, the chapter critically reviews the Train-and-Place vs Place-and-Train models, the Bench work model for persons with intellectual disabilities, the Systematic Instruction-based models for persons with intellectual disabilities, the School-to-employment transition models for persons with intellectual disabilities, the Individual Placement and Support (IPS) and Program of Assertive Community Treatment (PACT) models for person with mental illnesses as well as customized employment models for persons with disabilities.

*Chapter four***:** The literature on post-placement employment support as well as factors that contribute to sustainable and successful employment for persons with disabilities are critically reviewed.

*Chapter five***:** This chapter looks at the problem statements and aims of the study. It discusses the importance of the framework for sustainable and successful OE for persons with disabilities for different stakeholders from an ecological theory perspective as well as potential value-add at the practice, policy and research levels.

It also discussing the secondary aim of exploring the feasibility of developing a diagnostic tool to assess job sustainability.

Chapter six: The method undertaken in the study is discussed in this chapter. The chapter reviews the different research methodology approaches and justifies the selection of the grounded theory and mixed-method approach for purposes of achieving the research aim of this study. It also elaborates the procedures taken in the development of the interview and survey as well as related materials. Additionally, it describes the procedures for recruitment of participants and data collection for both the interview and survey phases of the study.

*Chapter seven***:** This chapter presents the results of the study. It lays out the demographic details of the participants for both interview (persons with disabilities who are in employment, their caregivers and employers) and survey (job coaches of persons with disabilities who are still maintaining employment and those who have dropped out of employment) phases of the study. It also describes the themes and sub-themes that came out of the thematic analysis of the interview data. Additionally, the results of the factor analysis of the survey data are reported. Comparisons in scores between the participants who are successfully maintaining employment and those who dropped out are also reported via independent sample t-tests. Further, the predictability of the survey scores to employment outcome is also reported through the binary logistic regression. Finally, ROC analysis data is reported to further strengthen the potential of a diagnostic instrument developing out of the survey in future that can help job coaches predict employment sustainability for a person with disability for a specific job.

Chapter eight: The translation of the results of the study into the development of the framework for sustainable and successful open employment for persons with disabilities is discussed in this chapter. Specifically, it looks at how well the themes and sub-themes from the interviews as well as the items from the survey after the factor analysis are mapped onto the conceptual model described in chapter two. It culminates in a proposed framework that is based on the conceptual model with important sustainability factors that has emerged from the interview and survey data.

Chapter nine: This chapter discusses the gaps that the framework addresses in the current disability employment landscape. Additionally, it critically discusses the implications of the framework on a) practice and service delivery of job coaches and employers, b) the policies and legislations that pertain to disability employment as well as c) the opportunities and need for future research to further sharpen the framework as well as develop formal diagnostic instruments for employment sustainability. Limitations of the study are also discussed.

Chapter One: Reviewing the Employment Landscape

This chapter commences by providing a synopsis of significant historical developments in the general employment sphere before discussing employment of people with disabilities in the open labour market internationally and then providing a critical insight on the landscape of disability open employment in Singapore., Critical analyses of important issues will shed light on pertinent gaps that currently exist both internationally and in Singapore.

A synopsis of Key Historical Developments in the General Employment Sphere

'Work' is a core activity in society. It is central to individual identity, links individuals to each other, and locates people within the stratification system. Perhaps only kin relationships are as influential in people's everyday lives. Work also reveals much about the social order, how it is changing, and the kinds of problems and issues that governments should address.

According to Ritzer (1975), Max Weber recognized that professionalization of work, like bureaucratization, is an aspect of the rationalization of society. Unlike some contemporary sociologists, Weber saw that professionalization and bureaucratization are not antithetical. He also understood that a profession must be viewed from the structural, process, and power perspectives. Weber offered no clearly delineated definition of a profession. According to Ritzer (1975), the defining characteristics of a profession are embedded in discussions of specific occupations to which he accords the label of a profession. Specifically, he outlined power, doctrine, rational training and vocational qualifications as the defining characteristics of a profession while also advocating for other characteristics such as 'full-time work', specialization, existence of a clientele and salaries. Additionally, he also accepted the idea of a professional

continuum. He also posited that for each profession, there is an 'ideal-type' worker and a 'non-ideal' type.

The landscape of employment has been shifting over the years and this evolution has posed different challenges to societies globally. This chapter will focus on developments in employment from the 18th century onwards where there began a shift towards industrialisation of the global economy. There was an evolution in the technological and social organisation of the workplace from artisanal set-ups to large, bureucratic factories where there was mechanisation of manufacturing and the concentration of labour. The change to industralisation and then post-industralisation have had a significant impact on organisations and their employees. Heckscher and Applegate, (1994) attributed the changes in the industrial revolution to four factors: flattening of the hierarchy, outsourcing, increased use of partnerships and decentralisation of work locations. The post-industrial revolution period then spurred the demand of information in the economy and the consequent rise of computers, electronics and telecommunication (Heckscher et al., 1994). There was also a change in the employment of people in workplaces, with more specialisations in functions and clearly defined job roles. There was a rise in demand for skilled and flexible employees. It also resulted in a rise in the roles of supervisors and managers (Winter & Taylor, 1996) and, on a larger scale, the increase in power difference between employers and workers. Organisations began placing more emphasis on training and skill development of employees so that employees have a wider skill base and can add value to the technology in the workplace. The value of workers became increasingly influenced by the extent to which they were flexible enough to perform a range of tasks and roles (Elger,1987).

In present times, John Maynard Keynes's frequently cited prediction of widespread technological unemployment "due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour" (Keynes, 1933, p.3) appears to be ringing true. Indeed, over the past decades, computers have substituted for a number of jobs, including the functions of bookkeepers, cashiers and telephone operators (Bresnahan, 1999; Chong, 2013). More recently, the poor performance of labour markets across advanced economies has intensified the debate about technological unemployment among economists. While there is ongoing disagreement about the driving forces behind the persistently high unemployment rates, a number of scholars have pointed at computer-controlled equipment as a possible explanation for recent jobless growth (see, for example, Brynjolfsson and McAfee, 2011). The impact of computerisation on labour market outcomes is well established in the literature, documenting the decline of employment in routine intensive occupations – i.e. occupations mainly consisting of tasks following well-defined procedures that can easily be performed by sophisticated algorithms. Globally, social, economic, and political forces have aligned to make employment more uncertain, unpredictable, and risky from the point of view of the worker. The Bureau of Labor Statistics (BLS) estimates (and likely underestimates) that more than 30 million full-time workers lost their jobs involuntarily between the early 1980s and 2004 (Uchitelle,2006). According to Brynjolfsson and McAfee (2011), the pace of technological innovation is still increasing, with more sophisticated software technologies disrupting labour markets by making workers redundant. What is striking about the examples in their book is that computerisation is no longer confined to routine manufacturing tasks. The autonomous driverless cars, developed by Google,

provide one example of how manual tasks in transport and logistics may soon be automated (Frey & Osborne, 2017).

Changes in legal and other institutions mediated the effects of globalization and technology on work and employment relations (Gonos,1997). Unions' influence has continued to decline, weakening a traditional source of institutional protections for workers. Government regulations that set minimum acceptable standards in the labour market have eroded. Union decline and deregulation reduced the countervailing forces that enabled workers to share in the productivity gains that were made by orgnaisations and corporations, reinforcing the notion that the balance of power continues to sway heavily away from workers and towards employers.

Further, deregulation and reorganization of employment relations allowed for the massive accumulation of capital in the economy. Advances in information and communication technologies allow capitalists to exert control over decentralized and spatially dispersed labor processes. Moreover, the entry of China, India, and the former Soviet bloc countries into the global economy in the 1990s doubled the size of the global labor pool, further shifting the balance of power from labor to capital (Freeman 2007). Political policies in countries like the United States—such as the replacement of welfare with workfare programs in the mid-1990s— made it essential for people to participate in paid employment, forcing many into low-wage jobs. Ideological shifts centering on individualism and personal responsibility for work and family life reinforced these structural changes; the slogan "you're on your own" replaced the notion of "we're all in this together" (Bernstein 2006). This neoliberal revolution spread globally, emphasizing the centrality of markets and market-driven solutions, privatization of government resources, and removal of government protections for vulnerable workers (Kalleberg, 2009).

In addition, the labour force became more diverse over time, with marked increases in the number of women, older workers and workers with disabilities. The increase in immigration due to globalization and the reduction of barriers to the movement of people across national borders has produced a greater surplus of labour today. However, this has resulted in an entrenchment of the 'survival of the fittest' notion. There are growing gaps in earnings and other indicators of labor market success between people with different amounts of education. Intuitively, it is reasonable to surmise that this disparity would have also existed between people with disabilities and those without.

Another evolution of the employment landscape is that the service sector has become increasingly central. This has resulted in a changing mix of occupations, reflected in a decline in blue-collar jobs and an increase in both high-wage and low-wage white-collar occupations (Kalleberg,2009). Compounding this is the trend that layoffs have become a basic component of employers' restructuring strategies. They reflect a way of increasing short-term profits by reducing labour costs (Kalleberg, 2009).

Hence, although the economic expansion and technological advancements resulted in the creation of more jobs in a way, the expansion has really been for higher level, sophisticated jobs which machines are unable to do. This, added to the shift in power from employees to employers, indicate that over the years, the evolution of the labour market is advantageous to some, but less so for others. This appears to be particularly true for the vulnerable population such as persons with disabilities and older workers.

Background on Disability Open Employment

A generation of development, policy, technology, improved delivery mechanisms, and demonstrations of significant progress has not yet provided sufficient clarity and procedures to assure that all people with disabilities have a good chance getting real jobs. Furthermore, there have been troubling signs that the integrated work enterprise is stalling, resulting in ever-increasing numbers of individuals with disabilities, especially significant numbers of people with developmental disabilities being supported in segregated work and day programs (Rusch & Braddock, 2004). Hence, efforts are being made internationally to understand how persons with disabilities can be sustained better in the open employment market and be contributing members of society. There are well documented examples of people with substantial impairments enjoying the benefits of good work over many years of fluctuating labour market conditions (Brown, Shiraga, & Kessler, 2006). Unfortunately, these success stories have not been generalised as employers and job support agencies continue to struggle with increasing the rate of employment of persons with disabilities. Research shows that people with disabilities experience employment disparities that limit their income, security, and overall quality of work life (Schur, Han, Kim, Ameri, Blanck, & Kruse, 2017).

Additionally, the sustainability rates of OE appear to be much lower than placement rates. For example, amongst people with disabilities in Singapore, there is a high drop-out rate after placement in OE. Based on a local job placement's agency's internal data, from April 2014 to March 2015, 88 persons with intellectual and developmental disabilities had successfully been placed in OE. Of this number, 25% dropped out within 6 months of placement. From April 2015 to March 2016, the

drop-out rate within 6 months was higher at 31%. By the end of 12 months from placement, the rate had increased to 40%. Hence, it is evident by the drop-out rate that the objectives and needs of employers are not met optimally and that there is a lack of understanding of the ways job support service providers can increase the effectiveness of placement and post-placement support services. Many employers do hire and effectively accommodate and include people with disabilities. However, the specific characteristics of those employers who are open to and successful in hiring and accommodating people with disabilities have not been identified and consolidated. As such, job coaches do not have a systematic and structured way of providing consultation, education, and advocacy for better employment outcomes for persons with disabilities.

Further, the importance of having persons with disabilities as contributors to the economy in the open labour market is understated. According to the United Nations (UN), about 10 percent of the world's population is disabled at any one time. However, this 10 percent underestimates the impact of disability. When people with disabilities are not fully integrated into society and the economy, they pose added costs on their families, for example more demands on their time which may preclude time spent in other productive pursuits (Mont, 2004). Additionally, the current greying world population is expected to increase the prevalence of disability as disability is known to increase significantly with age. In the United States, for example, about 2.3 percent of previously working 35-39 year olds have experienced the onset of a work-ending disability. For 50-54 and 60-64 year olds, that rate increases to 6.2 percent and 15.1 percent, respectively (Mont, 2004).

The effects of disability can also vary from mild to profound. This is true for intellectual, sensory or physical disabilities. Similarly, the support needs for each

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person with disability is also unique. Technology plays an increasingly important role in decreasing employment disparities (Schur et al., 2017).

Still, when discussing open employment sustainability of persons with disabilities, it is impossible adopt a 'one-size-fits-all' approach as the support needs and concerns of people with disabilities can be quite varied. Literature states that regardless of the presence or type of disability, persons with disabilities should have the proper customised supports and accommodations necessary (Buys, Matthews & Randall, 2015). However, we do not understand how to adequately apply this knowledge in employment support services so that the rate of successful open employment of persons with disabilities increases.

International Landscape on Disability Employment

Historically, there have long been debates about whether people with significant disabilities are capable of working in integrated environments (Wehman & Moon, 1988). For example, the National Disability Rights Network highlighted that the United States has a protracted history of segregating and sheltering workers with disabilities (Land, Ellis, Delpha, Suzuki & Homer, 2013). Dating back to the opening of the first sheltered workshop in 1840, through the period of rapid expansion of sheltered workshops in the 1950s and 1960s, the stated purpose of segregated work programmes has been to meet the needs of people deemed incapable of working in the regular workforce due to the severity of their physical, intellectual or mental impairments. Workshops were viewed as protective environments "sheltered" from public ridicule, judgment and shame, where people could develop the job skills necessary to compete for traditional community jobs (Black, 1992). A principal assumption at the time was that people with intellectual and developmental

disabilities needed to move through a continuum of rehabilitation services to prepare to work in a regular job in the community (Bellamy, Rhodes, Mank, & Albin, 1988; Taylor, 1988).

Moving through the traditional continuum of rehabilitation services meant that an individual first participated in prevocational education, then a work-activity centre, then sheltered employment, before finally being placed in a community job. A flaw in the implementation of this readiness model was that few people were ever determined ready for community employment and the vast majority remained confined to segregated settings in perpetuity. Parmenter (1999) explained that few people with disabilities were deemed 'ready' for transition to work in the open labour market upon graduation from schools. He also posited that teachers often do not know how much preparation is 'enough' before the person is employable. Furthermore, Siperstein, Heyman, and Stokes (2014) found that there is very little movement between sheltered employment and open employment and that very few people in successful open employment ever worked in a sheltered setting. This reinforces the notion that sheltered employment should not be viewed as a stepping stone to open employment.

By the early 1980s, the axiom "special people need special places" was being challenged by reports of individuals with significant disabilities living and working successfully in the community (Mank, 1994). The notion that people with significant disabilities needed to work in separate facilities apart from workers without disabilities, where their unique needs could be met by specially trained professionals, continued to erode as advances in supported employment opened the door to community employment for many people once considered unemployable. During the past three decades, a growing body of empirical evidence from the fields of

psychiatric rehabilitation and developmental disabilities has demonstrated the effectiveness of supported employment in assisting individuals achieve employment in the open labour market, while day treatment, prevocational training and sheltered employment have been shown to be relatively ineffective in preparing individuals for competitive employment (Bond, 2004; Cimera, Wehman, West, & Burgess, 2012; Marshall et al., 2014).

Consistent with international evidence, especially in developed countries such as the United States and Australia, supported and open employment for people with intellectual disability was encouraged by governments because of its positive socioeconomic impact on individuals and on its economic benefit to society (Beare, Severson, Lynch, & Schneider, 1992; Johnson & Lewis, 1994; Parmenter, 2011). Governments began to make policy changes to encourage more persons with disabilities to be employed in the open labour market. For example, in the United States, the Americans with Disabilities Act (ADA) of 1990 was considered a landmark civil rights statute in the U.S. The ADA prohibited discrimination and aimed to ensure equal opportunity for persons with disabilities in employment, state and local government services, public accommodations, commercial facilities and transportation.Further in a 2011 report entitled "Sheltered and exploited: The failure of the disability service system to provide quality work", the National Disability Rights Network (NDRN) sought, in part, to dispel myths about the capabilities of people with disabilities to be fully employed, integral members of the U.S. workforce (NDRN, 2011). The report asserted that "Workers with disabilities can be employed and be paid equally with the appropriate job development, training, work support, and assistive technology" (p. 34). It called for an end not only to sheltered employment, but also to an antiquated labour law exception that allows workshops and other

employers to pay less than minimum wages to workers with disabilities whose productive capacity is impaired by a physical or mental disability. Additionally, in 2014, the Rehabilitation Act which tended to facilitate only 'work ready' persons with disabilities to be given opportunities in the open market became incorporated as part of the broader Workforce Innovation and Opportunity Act of 2014 (WIOA), (WIOA, 2014). This was expected to push to the integrated employment agenda for youth transitioning from school to work. For the first time, competitive integrated employment was identified as the optimal employment outcome (Hoff, 2014). Similarly, in Australia, in 2013, the Australian Government introduced the National Disability Insurance Scheme (NDIS) following a Productivity Commission Report, which found the disability support system was 'fragmented, underfunded, unfair and inefficient' and not meeting the individual needs of people living with a disability (Buys, et al., 2015). The aim of the Scheme is to provide people with a significant disability with the supports necessary to enhance their independence and social and economic participation, but within a framework that enables them to exercise choice and control in the delivery of these supports (Buys et al., 2015). However, the extent to which this has effectively resulted in more persons with disabilities in open employment, as well as the perceptions of families and support agencies towards this scheme is still not known. The earlier Disability Services Act, 1986, advocated an end to segregated employment, but was met with much resistance from families and support agencies in Australia to the extent that up to 20,000 people remain in sheltered employment settings (Stancliffe, 2014).

However, despite human rights movement and policy changes by governments to include adults with disabilities in the workforce, their employment in the community remains much lower than the mainstream population (Ameri, Schur,

Adya, Bentley, McKay, & Kruse, 2018; Colella & Bruyere, 2011; Parmenter, 2011). In industrialized countries, the unemployment rate among adults with disabilities of working age is 50 to 70 per cent, which is at least twice the rate of those without a disability (International Disability Rights Monitor, 2004). It is a dire situation in developing countries, where approximately 80 to 90 per cent of people with disabilities of working age are unemployed (Parmenter, 2011).

Parmenter (2011) further highlighted that the global high unemployment rate of adults with disabilities is not moderated by culture or economic status. In countries with civil rights legislation, unemployment rates are approximately twice what they are for people without disabilities. Intuitively, it can be assumed that rates are even worse in countries without such laws, despite the fact that many of these people can work and want to work (Macias, DeCarlo, Wang, Frey, & Barreira, 2001). The poor employment rate of persons with disabilities globally needs to be explored with greater depth via a thorough examination of the systems and processes that facilitate and support persons with disabilities.

United States of America

10.4% of working-age individuals have disabilities in the United States. Despite these large numbers, the employment rate of working-age people with disabilities in the United States is 39.5%, less than half that of their counterparts without disabilities (79.9%) (Donnelly & Joseph, 2012). In 2015, the United States Department of Labor reported that 17.5% of persons with disabilities were employed in open employment. The ratio for those with no disability increased to 65.0 percent. The lower ratio among persons with a disability reflects, in part, the older age profile of persons with a disability; older workers are less likely to be employed regardless of

disability status. However, across all age groups, persons with a disability were much less likely to be employed than those with no disability (Persons with a Disability: Labor Force Characteristics Summary, 2016). Additionally, Americans with disabilities experience higher unemployment rates, lower earnings and higher poverty rates than Americans without disabilities (Brault, 2014). Those whose disabilities are significant experience even greater employment and economic disparities. For example, only one in five individuals receiving day supports from state intellectual and developmental disabilities (IDD) agencies in 2012 participated in integrated employment services (Butterworth, Hiersteiner, Engler, Bershadsky & Bradley, 2015). In a Canadian study, Shier, Graham and Jones, (2009) provided strong evidence that perceptions of disability have a greater impact on their inability to maintain and secure employment than does the lack of accommodative practices and measures in the workplace.

Australia

In Australia, people with intellectual disabilities made up 41 per cent of those served in government funded employment services in 2010 (Parmenter, 2011). They represented 27 per cent of all participants with disabilities in open employment, but 73 per cent of those in 'sheltered workshops'. Generally, there has been a gradual decline in the proportion of people with intellectual disabilities accessing inclusive employment services. According to Krieger, Kinebanian, Prodinger and Heigl (2012), Australia has among the lowest rates of employment of individuals with disability in the Organisation for Economic Cooperation and Development (OECD) countries. For example, in 2006, rates of employment of people aged between 15 and 64 years were 27% for those with a profound or severe core-activity limitation, 49% for those

with a disability, and 77% for those with no reported disability (Australian Bureau of Statistics, 2010). Additionally, the overall employment participation rate for people with disability has stagnated at 54 per cent compared to 83 per cent for those without disability, while the unemployment rate especially among younger people with ID is also higher (Australian Bureau of Statistics, 2012) Collectively, in OECD countries, unemployment rates are also much higher for disabled people. For example, in the late 1990s the unemployment rate among disabled adults, age 20-64, was 80 percent higher than for the non-disabled population. As such, the focus of disability policy throughout most of the OECD countries has recently shifted away from guaranteed income security and towards economic integration. However, for this shift to be effective, increased responsibilities for disabled persons must be accompanied by the guarantee of adequate supports that promote full and sustainable participation in the labour market (Mont, 2004).

Europe

In the United Kingdom (UK), 45.6% of disabled people are employed compared to 76.2% for non-disabled people. The trend was for a steady increase from 44.5% in 2002 to a high of 48.3 in 2008, and a fall from 2009 to the current position as the recession took hold. However, when changes in the employment rates of non-disabled people are taken into account the difference has fallen consistently from a difference of 36.2% in 2002 to 28.7% in 2011. There are around 6.9 million disabled people of working age in the UK, of which around 1.5 million have a learning disability (Beyer, 2012). Studies suggest that the people with learning disabilities, autism and mental health problems remain poorly represented in the open labour market in the UK, compared to those with physical disabilities. (Beyer, 2012). In Scotland and

England, roughly about 5% of adults with learning disabilities are in open employment (Beyer, 2012).

In Italy, the unemployment rate for disabled persons was 14.5 percent compared to 13.1 for the non-disabled. In Austria, Germany, and the Netherlands, however, the unemployment rate of disabled persons was about 1.7 times greater than that of the overall population (Mont, 2004). The gap between unemployment rates between the disabled and nondisabled population can account for a significant component of a country's overall unemployment rate. For example, in Germany the unemployment rate for disabled people was 20.5 percent, compared to 7.4 percent for the non-disabled. The overall unemployment rate was 9.3 percent. If people with disabilities were similarly successful in open employment as their non-disabled counterparts, the national unemployment rate for Germany would have been nearly two percentage points lower. In the Netherlands it would have been about 2.4 percentage points lower (Mont, 2004).

Several European countries have chosen different ways of dealing with high unemployment of people with disabilities. An approach that has been implemented, for instance in Germany, France, Austria, Belgium, Italy, Spain and Poland, is a disability quota system which forces companies to employ a minimum percentage of people with disabilities. Quotas range from 2% in Spain to 7% in Italy. Most countries adopted a quota of 5% of the workforce. However, many of the quota systems allow for a fine that organizations can pay and that releases them from fulfilling the quota (Vornholt et al., 2018). Additionally, it seems to be rational from a profit-making perspective, for firms to hire productive disabled workers at just their levy quotas and avoid the payment of levies. Moreover, decreasing profits by disability employment would happen only if disabled workers were paid more than they produce. Like many

countries, the average wage of disabled workers has been lower than that of normal workers in Japan. This may be partly due to the discrimination against disabled workers. Some profit-making firms do hire disabled workers as long as their productivity is higher than minimum wage.

Korea

In Korea, the unemployment rate for people with disabilities was over three times as high as for non-disabled people (Mont, 2004). A point to note is that it is important to consider differences in definitions of disability when comparing statistics across countries. For example, in Korea, even though the reported unemployment rate for those with disabilities is three times the rate of those without disabilities, the overall unemployment rate would only have been 1.2 percentage points lower (Mont, 2004). This could be attributed to the significantly smaller percentage of people with disabilities in Korea which can, in turn, be influenced by how disability is defined in Korea. For example, intellectual disability was not included as a category in the census. This could be due to the possibility that persons with intellectual disabilities are still in institutions or in their homes.

The industries in which people with disabilities have been employed are relatively consistent across countries. In the United States, persons with disabilities have typically been employed in service sectors such as hospitality, retail, education and health as well as manufacturing (Houtenville & Kalargyrou, 2015). Similarly, in Japan and China, people with disabilities typically work in service oriented social enterprises involving jobs like tailoring, hairdressing and retail (Huang, Guo & Bricout, 2009),

Singapore Landscape on Disability Employment

In Singapore, the government's Enabling Masterplan 3 that was rolled out in 2017 revealed that 2.1% of the population who are between 7 to 18 years of age, 3.4% of people between the ages of 18 to 49 and 13.3% of people between above 50 years of age present with some form of disability. In Singapore, persons with disabilities comprise about 0.55% of the resident labour force (Hui, 2017). These persons with disabilities are mainly employed in the hospitality, food and beverage, wholesale and retail and administrative support sectors, which is quite similar to the international context.

The employment opportunities for people with disabilities in Singapore have increased in the last two decades because of strong economic development (DPA, 2015). In 2015, 305 people with disabilities sought the Society for the Physically Disabled's (SPD) help to find jobs, almost double the figure in 2013. The placement rate also increased, with 127 securing jobs in 2015, compared to 37 in 2013 (HRINASIA, 2016). Consistently, according to the Disabled Persons' Association (DPA), in 2010, only 121 job vacancies were listed for persons with disabilities which increased to 275 job vacancies in 2012 (DPA, 2015). This shows that the number of jobs available for persons with disabilities has more than doubled in the last two years. However, while some employers seem more willing to hire persons with disabilities, there is a lack of awareness of how they can successfully integrate a person with disability into their workforce.

In Singapore, social service agencies such as Bizlink and MINDS used to separately provide job placement and support services for people with disabilities. Since 2013, a government-funded agency called SGEnabled serves as a focal point

to support the needs of persons with disabilities. One of the key functions of this agency is to enhance the employability and employment options for persons with disabilities by leveraging on the strengths of existing partners and schemes. To facilitate training and employment services, it works with agencies that are funded to provide vocational assessment, job placement and job support services for persons with disabilities.

Summary

Literature highlights that, internationally, countries are looking to improve the rate of successful employment for persons with disabilities. But they face several barriers in supporting persons with disabilities in sustaining jobs in the open labour market. For example, there is still a misperception that people with disabilities have to be 'ready' before they are placed in jobs. However, evidence informs us that this approach is often a barrier to persons with higher support needs to get jobs in the open labour market. Instead of motivating employers and job coaches from making work accommodations and support to fit the person's needs, it reinforces the opposite, where the person is pressed to fit the job role and the accommodations that come with it. Consistently, Kregal, Wehman, Taylor, Avellone, Riches, Rodrigues and Taylor, (2020), posited that personalised client assessment, job development and placement are critical to successful employment outcomes.

Chapter Two: Development of a Conceptual Model

Introduction

The first chapter covered the broad landscape of disability employment and highlighted some of the pertinent gaps that is applicable for all disability profiles and job industries. This chapter aims to, firstly, discuss and critique the important models and concepts in disability studies. This then informs the development of a conceptual model which will guide the thinking and arguments in the subsequent chapters.

Review of Disability Models

Pfeiffer (2002) suggested there are nine types of models that define disability: (1) the social constructionist version, (2) the social model version, (3) the impairment version, (4) the oppressed minority (political) version, (5) the independent living version, (6) the post-modern (post- structuralist, humanist, experiential, existential) version, (7) the continuum version, (8) the human variation version, and (9) the discrimination version. There are also the International Classification of Functioning (ICF) (WHO, 2007) and the Bio-psycho-social model (Engel, 1978), which talks about the importance of assessing well-being from a biological, psychological and social approaches in a holistic manner. It is essential to identify the most appropriate model of disability to inform the development of a conceptual model to guide the arguments and thinking in the following chapters.

The social constructionist version of disability focused on the unexpected differentness is seen as a stigma by the so-called normal people who socially construct the identity of people with disabilities based on that differentness (Goffman, 1963). However, Pfeiffer (2002) argued that this explanation of an acceptance of existing

social roles gives disability the appearance of objectivity and inevitability. Further, as the roles are based upon value judgements as to what is "good", this is a deficit model because the person with the disability is blamed for not being able to fulfill the social role.

The social model emphasizes that the organization of society prevents people with disabilities from participation in society in terms of employment and access. It maintains that society also assumes people with a disability are not able to make their own decisions, resulting in physicians being empowered to make decisions for them about things which are not even connected to medicine (Pfeiffer, 2002). This model does not allow for the integration and inclusion of people with disabilities in society. Further, it emphasised what the person with disability is unable to do rather, than highlighting their strengths.

The impairment model posits that it is the impairment which differentiates people with disabilities from people without disabilities (Pfeiffer, 2002). However, it is also seen as a deficit model because the impairment is in the person while ignoring the structures and norms in society which results in the disability for the person.

The oppressed minority version points out that people with disabilities are treated as second class citizens who are confronted with various barriers and face discrimination. These experiences are seen as being akin to the experiences of an oppressed minority group (Pfeiffer, 2002). While this has benefits from an advocacy perspective and championing for equal rights of persons with disabilities, it ignores the unique social, physiological, educational and vocational needs of people with disabilities, compared with other marginalised groups.

In the human variation model, Scotch and Schriner (1997) as well as Schriner and Scotch (1998) argued that while people with disabilities are similar to other oppressed groups, they suffer discrimination, because the disability community is so varied. They add that society is simply unable to deal with the wide variation in the complex disability community and standardization will not work. In some sense, this explanation may have applicability to a conceptual model for disability employment as it is aligned to the need to look at each person's unique needs so that they can be supported better in the workplace. However, while the model acknowledges this importance, it appears to be one that accepts the situation for what it is and does not go further to emphasise the need to drive change in policy and practice so that person-centredness is at the centre of all disability support structures in society.

The continuum version of disability explains that it is not a 'black-or-white' categorisation, but that disability is a continuum where everyone will eventually have some form of disability (Pfeiffer, 2002). However, this version is not fully developed. Further, while it has utility from an advocacy, education and awareness standpoint, it appears to have little applicability to improving the lives of persons with disabilities.

The 'Disability as Discrimination' model explains that a person with a disability only feels s/he is disabled when confronted with discrimination (Pfeiffer, 2002). This appears to be a very fundamental explanation which sits well with all the other models of disability, especially the social model. Oliver (2008) supported this approach by saying that it is structural and systemic barriers, such as a lack of wheelchair ramps or a failure to provide sign language interpreters, that disables disabled people and keeps them largely unemployed. However, Levitt (2017) argued that while the social model has been used as a tool to deliberate disability issues and to change attitudes towards disability, it needed to be re-invigorated so that it is applicable across different social,

cultural and geographical contexts. He also argued the need to go beyond defining the social model in that disability is not only shaped by society. For example, Johnston (1997) wrote that disability is influenced by 'physiological, cognitive and emotional factors as well, on top of social factors'. Shakespeare and Watson, (1997) also discussed the contentious issue of the importance of considering personal factors in addition to social barriers. He posited that while there are gaps in the social model, the focus should be on improving the applicability of the model to improve societies' attitudes towards disability. More recently, Jackson (2018) emphasised the importance of looking at environmental barriers from a 'lived experience' perspective. She emphasised that to tangibly improve the QoL of persons with disabilities in communities, built environment practitioners must recognize the disabling potency of current built environment practice. Further, she stated that built environment practitioners need to engage directly with people with disability to improve understanding of accessibility needs so that environmental modifications tangibly result in greater accessibility.

The independent living and post-modern existential version of disability would appear to best align to person-centredness, human rights and the need to address barriers in the environment and society, including workplaces. The independent living model emphasizes that the person with a disability has a fundamental right to make personal choices and does not have a deficit which needs to be corrected (Pfeiffer, 2002). This understanding of disability is crucial to overcome employability issues confronting a person with a disability by focusing on addressing the various socially created barriers in the workplace and at home as well as poor support services. The post-modern existential understanding of disability is also critical in emphasising that persons with disabilities have an equal right in society, including areas such as

education, health and employment. Advocacy, then naturally becomes a critical part of the solution so that the barriers to sustainable and successful employment are eliminated. The post-modern existential version also suggests a reimagining of the relationship between the self and the body and the increasingly blurred boundaries between biology and machine by emphasising the role of assistive technologies in augmenting the capabilities of the person with disability (Gibson, Carnevale & King, 2012).

With the identification of the independent living and post-modern existential versions of disability as the drivers of the development of the proposed conceptual model, the concepts which support this version of disability and which would underpin the conceptual model to guide the arguments in this thesis, will now be discussed.. Before delving into the concepts in detail, it is necessary to identify that the intended outcome of the conceptual model, is to facilitate optimal QoL for persons with disabilities.

QoL as the broad outcome for the Conceptual Model

The World Health Organization (WHO) (2020) defined QoL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." WHO's QoL framework has six domains which constitutes 24 facets, one of which is 'Work Capacity'. Studies have shown that positive employment outcomes contribute to good overall QoL in people with disabilities (Cocks, Thoresen & Lee, 2015). Specifically, Beyer, Brown, Akandi & Rapley, (2010) found that people with disabilities employed in the open labour market had better QoL than those who were in sheltered employment or day activity services. These important findings place substantial

importance to looking into how we can support persons with disabilities to successfully obtain and maintain employment within the open labour market.

Schalock (2000) specifically argued that QOL research should focus on the individual, by interpreting QOL as a social construct and overriding principle for improving the perceived QOL of individuals. Schalock hoped that countries would integrate QOL into law, policy, and service delivery systems; service providers would implement quality enhancement techniques, and individuals would pursue a life of quality, all within a QOL rubric. Similarly, Stokols (1992) and Schalock, Bontham and Marchand (2000) argued for approaches to QOL research that focused on individuals and/or their environments,and supported the implementation of environmentally and program-based enhancement techniques that responded to individual needs. This would apply to the employment context as well where the notion of successful employment for persons with disabilities should be viewed within the perspective of allowing them the chance to optimise their QoL throughout their employable years.

With the identification of the independent living and post-modern existential versions of disability and QoL as an outcome of the conceptual model, there is a need to examine concepts that support this approach. At the fundamental level, adopting an approach that is based on inclusion and human rights is critical to overcoming existing known barriers to having a good QoL for persons with disabilities.

Disability Concepts that support the Independent Living and Post-modern Existential Models

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) posits that persons with disabilities deserve equal opportunities in all areas of society that

promote living a life with dignity. This would include areas such as education, employment and health (Parmenter, 2011).

The UNCRPD also specifically posits that people with disabilities deserve equal opportunities in securing and sustaining employment in the community. It advocates for the rights and requirements of people with disabilities to be taken into account in laws, policies, programmes and services. In the context of employment, the UNCRPD advocates a movement away from the segregation of persons with disability from the rest of society in areas of vocational training and employment. This has paved the way for policy makers and service providers to explore ways for persons with disabilities to be integrated and be given equal opportunities in the open labour market.

The UNCRPD has been positively influencing governments, service providers, caregivers and employers to provide more opportunities for persons with disabilities in the open labour market. This is so people with disabilities are enabled to take their place as citizens on an equal basis with others and make their contribution to their communities and the wider society in which they live. Aside from the UNCRPD, other international labour standards, such as the ILO Convention concerning Vocational Rehabilitation and Employment (Disabled Persons), also advocate for the need to provide equal employment opportunities for persons with disabilities in the open market (Debono, 1994). However, presently, not enough knowledge and resources are available to support employers, job support service providers, caregivers and persons themselves in terms of enabling the person with disability to be sustained in the job after placement.

In the specific case of successful employment for persons with disabilities, a focus on inclusion and human rights is important to overcome barriers such as access

to premises, human resource mis-management, selection of new employees without disabilities for the same jobs, lack of integration of assistive technology and artificial intelligence; misperception of cost of disability inclusions; and inflexible organisational workplace practices (Darcy, Taylor & Green, 2016).

Supporting the UNCRPD and its application to tangibly benefit the lives of persons with disabilities, Degener (2017) commented on the Human Rights Model of Disability by describing how it shifts away from the social model and facilitates the implementation of the UNCRPD.

The other important concept that supports the conceptual approach is the WHO (2001) International Classification of Functioning, Disability and Health (ICF). The ICF posits that disability depends on the dynamic relationship of a person's health impairment and contextual factors- a person is not disabled but becomes disabled by the context. In the context of employment, the work environment is certainly an environment with potential for impeding accessibility and inclusion while reducing productivity in employees with cognitive or physical impairments, because of its high demands for the person and low tolerance for deviation or accommodation.

Somewhat similarly to the ICF, the social model of disability sees disability as a social construct as opposed to the medical model which posits a deficit based pathological approach to disability (Pfeiffer, 2002). In the social model, disability is not the attribute of the individual; instead, it is created by the social environment and requires social change. Environmental and social barriers unnecessarily isolate and exclude persons with disabilities from full participation in society.

In the supports model, 'supports' are defined by Schalock, Bonham and Marchand (2010), as "resources and strategies that aim to promote the development,

education, interests, and personal well-being of an individual and that enhance human functioning." Although initially conceptualised with Intellectual Disability in mind, the model has been adopted more widely across different disability types. The model highlights that successful adjustment of people with disabilities to their environment is related to both person-specific behavioural capabilities and setting-specific performance requirements. These results are consistent with a social-ecology model that explains a person's growth, development, and adjustment as depending on both individual and environment related factors as well as the degree-of-fit between individuals and their environments. Facilitating this individual-environment congruence involves knowing the type and amount of support a person needs so that the support provided is person-centred and optimises the functioning of the individual (Buntinx & Schalock, 2010).

Generally, the ICF, social and supports models highlight the need to view disability from a support needs perspective rather than a deficit-based model. All three approaches attach importance to the role of the environment. The ICF essentially attempts to bridge the social and medical definitions of disability. In the context of employment, it informs us that any work trying to advocate for sustainable OE should emphasise the support structures and systems that need to be in place for a person with disability to continue in a particular job in the community. In some sense, it points to the importance of looking at the supports to specifically facilitate the fit between the individual with disability and the work setting.

Nevertheless, the ICF model has had its critics. Pfeiffer (2002) emphasized that as long as the conceptual basis of ICF is a medical model, disability issues are getting medicalized. According to Pfeiffer this may be the first step towards eugenics and a 'class-based' evaluation where 'normal' is the standard for measure. In this regard,

Pfeiffer posits that this reinforces the stigmatization of people with disabilities. Pfeiffer's criticism would appear to also posit that the ICF is more suited to people with physical disabilities and is less sensitive to the unique barriers faced by those with intellectual and developmental disabilities. Although the ICF does acknowledge the environment as an influence to the overall functioning of the person with disability in society, there is presently a lack of data to support this. Nonetheless, the UNCRPD and ICF have a common outcome which is to improve the QoL of persons with disabilities.

Having identified the independent living and post-modern existential definitions of disability as the key driver for the development of the conceptual model, as well as UNCRPD and ICF as key concepts that support it, it is important to then examine the best practices within the disability sphere that are levers that enable the achievement of QoL as a primary outcome.

Best Practice Enablers of QoL

Person-centred approach

The person-centred approach is one that is synonymous with the ICF in that it points to the importance of looking at the supports to specifically facilitate the fit between the individual with disability and the environment, including work settings within the open labour market (Klatt et al., 2002).

Person-centred planning (PCP) aims to support people with ID in choice making, shared power, rights and inclusion (Klatt et al., 2002). Sanderson (2000) described five key features of PCP: (a) the person is at the centre, (b) family members and friends are partners in planning, (c) the plan reflects what is important to the person, his/her capacities and what support he/she requires, (d) the plan results in

actions that are about life, not just services and reflect what is possible and not what is available, (e) the plan results in ongoing listening, learning and further action. Person-centred planning has often been linked with facilitating inclusion and equal opportunities for people with ID as the rest of the population and underlines the importance of equality and empowerment (Bollard, 2009). Person-centred planning has been shown to have a positive impact on some outcomes for individuals with ID, particularly community-participation, participation in activities and daily decision-making (Ratti, Hassiotis, Crabtree, Deb, Gallagher, & Unwin, 2016).

The principles of person-centred planning are now ingrained in services and programmes as well as government regulations in countries such as the UK (DOH, 2009), US and Australia (Holburn, Jacobson, Schwartz, Flory, & Vietze, 2004).

Person-centred planning fundamentally posits that decision making is driven by the individuals themselves and by their social networks, with particular focus on self-determination, choice and autonomy. It is noteworthy that in this approach, the person with a disability and his/her support network play a primary role in the planning process which is driven by the person's abilities rather than their deficits (Sanderson, 2000). In the context of employment, a person-centred approach to job placement and support and one that emphasizes active support via an ecosystem around the person are also key to proposing a model of sustainable open employment for persons with disabilities. A positive effect of person-centered planning on future employment was found in a retrospective study of person-centred career planning and subsequent employment matches by Menchetti and Garcia (2003).

However, for person-centred planning to be effective in improving employment outcomes, it is equally important to ensure that the right infrastructure is in place in the

work setting. Heller, Miller, Hsieh and Sterns, (2000) reported that there were significant barriers to implementing employment related goals such as changing jobs or work sites as there was a limited availability of work places and job opportunities for persons with disabilities. Hence, it is crucial to not just emphasise person-centeredness but also the necessary infrastructure, systems and processes to support it. Specifically, it is important to identify which aspects of person-centred planning improves outcomes in employment (Holburn, 2002).

Process and systems evaluation of the employer may be a useful way to clarify what are enablers and barriers within the organisation to successfully support the person with disability for a sustainable and successful employment. (Moore, Britten, Lydahl, Naldemirci, Elam, & Wolf, 2017). Evidence from literature (Li & Porock, 2014) posited that the adoption of person-centeredness in employment must take into consideration the broader context in which the individual is supported during his/her employment in the open labour market, e.g. career planning, organisational processes and policies and family support systems. Understanding these contexts could support persons with disabilities in achieving their full potential in their jobs (Li et al., 2014).

Active Support

While we emphasise the importance of support provided for the person with disability, 'how' the support is provided is also key. According to Felce, Jones, and Lowe (2002), Active Support is a ''bridge'' to participation in everyday activities by persons with disabilities. It aims to increase time spent by persons directly supporting participation by people with a disability by increasing the range of available activities and enhancing their support skills. Studies have found that the active mentoring of a

person with disability supported their inclusion in a group setting (Wilson, Bigby, Stancliffe, Balandin, Craig, & Anderson, 2013).

While the concept of Active Support has been extensively studied in the domains of aging and care provision, it appears intuitive that it is central to the successful inclusion of persons with disabilities in mainstream employment settings. Bigby (1992) proposed the creation of access and linkage, or "community building" structures within the community that use active support while Stancliffe, Jones, Mansell and Lowe, (2008) advocated for active co-worker training to overcome barriers to community inclusion for persons with disabilities. Stancliffe et al., (2008) explained Active Support as the person with disability becoming an "active participant" instead of a "passive observer." This is akin to the notion of 'choice-making' where the person with disability is given the opportunity to determine for himself/herself the type of industry and job while also having a say in the type and extent of support provided in the workplace (Cable & Judge, 1996; Agran & Krupp, 2011; Beadle-brown, Hutchinson & Whelton, 2012). Opportunities to choose and self-determine have been found to increase motivation levels in employees as well (Agran et al. 2011). When this happens, it is more likely the person is more motivated and included in the workplace as well as consequently more likely that the job placement is a sustainable and successful one. Additionally, Inge (2008) has shown that when active participation and self-determination are afforded to employees with disabilities in terms of choice of job and support needed, employment outcomes tend to be better.

It is also clear that it is not a case of just having one person in the classroom, workplace or community to 'supervise' or support the person with disability to be included in society- it almost takes an ecosystem of support that wraps around the person. This is aligned to the principle behind the concept of Learning Theory and

Applied Behaviour Analysis (ABA), which is an established approach to supporting the person and reducing behaviours of concern (LaVigna & Willis, 2012; Moreno & Bullock, 2011). One of the barriers to sustaining a job in the open labour market for a person with disability, particularly intellectual or developmental disability, is the display of behaviours of concern on the job. However, these behaviours are often due to a communication deficit and/or an unfulfilled need. Hence, there is also a need to take reference from the principles of Learning Theory and PBS when working towards successful OE.

Learning theory and PBS

Learning theory advocates for instructional interventions that focus on: (a) the acquisition of proceduralized skill, (b) the development of regulatory and monitoring strategies of comprehension, and (c) the acquisition of organized structures of knowledge (Glaser & Bassok, 1989). Similarly, Bandura (1962) emphasised the importance of self-regulated learning as well as the importance of considering environment in development and learning. The social learning theory tells us that people learn through the social interactions with others in a social context (Muro & Jeffrey 2008). The importance of modelling and learning through imitation has also been shown to be important mode of learning. According to Bandura, imitation involves the actual reproduction of observed motor activities. (Bandura 1977). The social learning theory also has led to the development of the Universal Design for Learning (UDL) approach that is used in education settings for persons with intellectual and developmental disabilities to optimise learning outcomes through processes and structures that enhance their ability to adapt to the environment and curriculum (Hazmi & Ahmad, 2018). Similarly, Sukhodolsky and Butter, (2007), also showed that social learning theory was fundamental in development of effective social skills training for

persons with intellectual disabilities in multiple environment and contexts. This suggests that the social learning theory is important in development and implementation of instructional strategies and skills training in the work setting as well.

Positive Behaviour Support (PBS) is a collaborative, person-centred, multi-faceted approach which aims to reduce behaviours of concern by facilitating a functional understanding of the individual's behaviour in the context in which occurs. This is paired with enhancing the adaptive functioning and overall QoL of the person, and not just 'managing' the behaviour that is considered as 'negative'. (Gore et al., 2013; Toogood, Boyd, Bell, & Salisbury, 2011). In the context of employment in the open labour market, PBS aims to offer an effective means of supporting the person and modifying the environment so that certain concerning behavioural challenges are minimised at work and the person is able to perform more productively. PBS takes a holistic and ecological approach and looks at the individual, psychological, biological, and environmental factors that interact to produce behaviour (Lucyshyn, Horner, Dunlap, Albin & Ben, 2002).

PBS is an evidence-based approach which is known to be effective in producing positive and inclusive outcomes for persons with disabilities, both in areas of learning as well as supported employment (Yeung, Mooney, Barker, & Dobia, 2009; West & Patton, 2010). Hence, the degree to which processes and support structures in the work setting are customised and suitable to supporting the needs of each individual would influence the success of the person with disability in a particular job.

Evidence-based practice (EBP)

Next, there seems to be a disparity when it comes to emphasis on an evidence-based practice (EBP) curriculum in school settings as well as in job support delivery methods for persons with disabilities, particularly those with intellectual and developmental disabilities. EBP aims to identify, disseminate, and promote the adoption of practices with demonstrated research support, wherein the rigour and validity of scientific evidence is evaluated in decision-making regarding the adoption, implementation, and/or evaluation of services" (Kratochwill, 2007). While EBP is seen as a key feature of inclusive and special education curricula, it is overlooked in the disability employment space. Job support strategies are often based on subjective experiences of job coaches and employers rather than being informed by evidence of 'what-works'. In the area of employment, studies have shown that adoption of evidence-based approaches to supported employment increases positive outcomes for persons with psychiatric disabilities (Kregel et al., 2020; Cook, Burke-Miller & Roessel, 2016).

Importantly, there should also be emphasis on a data-driven, outcomes-based approach to planning and decision making in the placement and support of persons with disabilities in OE. Too often, the plans and decisions are made on the subjective opinions of support staff, employers and caregivers on what the person with disability can or cannot do, what type of job is best fit for the person, what type of support structures need to be in place for the person as well as how long the person should receive ongoing support on the job. When processes and systems are embedded within an evidence-based framework, where outcomes are data-driven, it facilitates sustainability. In line with this, there is currently a dearth of evidence-based outcomes measurement tools in the disability employment domain, which needs to be addressed.

In schools in the United Sates, legislation is put in place requiring teachers to use practices and curricula that are evidence-based so as to promote better student outcomes for students with disabilities (Test, Bartholomew & Bethune, 2015). Schools have made an effort to identify practices and predictors to help ensure students are receiving research-based instruction in a variety of areas (Kowalski, 2009; McLeskey, Tyler, & Flippin, 2004). In addition, recommendations have been identified in the school system for program evaluation research (Slavin, 2008). In the same vein, the role of EBP in disability employment could be two-fold- type and scope of job support that is research-based as well as systematic evaluation of person-job fit and job outcomes.

Transition Planning

Another key enabler for sustainable and successful OE is the emphasis on quality transition planning. Often when persons with disabilities complete school and are referred for open employment, they are unprepared for the challenges that come with it. Poor transition from school to employment settings is often stated as a contributing factor for unsuccessful post-school adjustment for students with disabilities, particularly intellectual disabilities. Prince (2016) found that transition planning and employment preparation for youth with disabilities are not very effective. Specifically, aims and expectations for employment are not consistently explored within school systems, or by families. This is possibly reinforced by schools' and families' misperception that feasible opportunities in the open labour market are few and far between for post-secondary education for their children with disabilities. Additionally, transition planning for students with intellectual disabilities into post-school employment settings are negatively implicated as transition plans for them are not developed until as late as 14 years old, which is too late for most students with

learning disabilities. This lack of effective transition planning often results in inadequate postsecondary adjustment problems during college (Cummings, Maddux, & Casey, 2000). However, Wehman, Kregel and Barcus (1985) have opposed this view somewhat as they claim that the age is less important than the work experience, transition planning processes and work preparation that is put in place for the person. The importance of work experience and transition planning has also more recently been reinforced by Kregal et al., (2020).

Newman, Madaus, and Javitz, (2016) found that students with transition plans specifying accommodations were more likely to receive disability-related supports. Similarly, Wehman, Sima, Ketchum, West, Chan and Luecking (2015) highlighted predisposing, reinforcing and enabling factors in transition plans that were related to successful post-school transition for adolescents on the autism spectrum in Australia.

Importantly, literature posits that transition planning is only as effective as the degree to which it is customised to the person (Riesen, Morgan, & Griffin, 2015). Hence, it seems that customised transition planning, where the person is actively involved in developing and implementing the plan, is essential to facilitate positive employment outcomes for persons with disabilities.

With the independent living and post-modern existential definitions of disability as the key driver for the development of the conceptual model, we have FOCUSED on human rights (UNCRPD) and ICF as concepts that support it with Person-centred approach as well as active support, PBS, evidence-based practice and transition planning as best practices that enable the achievement of QoL as a primary outcome. The next step is to identify a suitable theory in which to frame these approaches, concepts and practices.

The Ecological Systems Theory as the Frame for the Conceptual Model

The Ecological Systems Theory (Bronfenbrenner, 1977, 1979, 2005) looks at the person in the centre and various levels of environmental influences around him or her that would in some direct or indirect way affect the QoL outcomes for the person. These would be influences at the microsystem, mesosystem, exosystem, macrosystem and chronosystem levels.

With the person with disability in the centre, it acknowledges that there are factors internal to the person that can influence his or her education, employment, health and living outcomes. At the microsystem level, the person's most immediate environment would comprise of the family or caregiver of the person with disability as well as agency and support workers who support the person. This is in line with the Ecological Systems Theory which states that the person's family as well as other forms of immediate support network/s would have the most direct influence of the person's overall development and functioning (Bronfenbrenner, 1977, 1979, 2005). At the mesosystem level, it would be the factors associated with the broader environment that have specific situational influence on the person. In the employment context, this might include the factors associating with the workplace setting e.g. colleagues, supervisors and managers as well as the task accommodation and modifications that are being made for the person to succeed in his/her job. At the exosystem level, it would comprise of the policies, structures and culture if the broader systems that influence the person's overall functioning and well-being. In the employment context, this might encompass the factors associated with the employer/organization. Finally, at the macrosystem level, it would be the national policies and provisions to support the person in the different aspects of his life. In the employment context, this would be government policies, schemes that facilitate (or impede) the hiring and retention of

persons with disabilities. Importantly, it would also encompass societal attitudes towards having persons with disabilities included (or excluded) in the larger society, including education, health and employment settings.

In the context of open employment, inaccurate stereotypes and mistaken assumptions of jobseeker capacities and protective, at times negative, attitudes towards those with disabilities are barriers towards inclusion for persons with disabilities, including work settings in the open labour market. Parmenter (2011) elaborated that this might be attributed to the negative attitude amongst employers that employing persons with disabilities may adversely affect the profitability of businesses. This view is further exaggerated when it concerns persons with specifically intellectual disability (Yazbeck, McVilly & Parmenter, 2004). However, literature points out that this is a misperception. Contrary to the negative stereotypes portrayed throughout history; people with intellectual disabilities can be loyal, trustworthy and diligent workers who seldom fail to turn up for work (Lindsay, Cagliostro, Albarico, Mortaji, & Karon, 2018). However, Parmenter (2011) further questioned this when he explained that there has been a growing global recognition of the working capacity of persons with intellectual disabilities which has consequently resulted in the expansion of initiatives by governments to give them chances to carry out meaningful and value-adding work in ordinary workplaces. Also, the recognition is in some sense from a non-economic perspective, where the presence of people with disabilities in the workforce can increase the overall focus on improving training and supervisory practices, basic work practices, health and safety issues and an improvement of organizational performance (Lindsay et al., 2018). This benefits all employees and not just those with disabilities. Of equal importance, from an economic benefit /standpoint, Tuckerman, Smith and Borland (1999) found that the placement of

people with high support needs in a supported employment programme in an Australian context was a cost-effective option for government where the programme was significantly less costly than a day activity programme catering for a similar population. Similarly, studies reported that supported employment is a good investment for taxpayers and society where workers tend to be compensated better than in sheltered employment (Boni-Saenz, Heinemann, Crown, & Emanuel, 2006; Cimera & Rusch, 1999).

While these misperceptions of the cost-benefit of hiring more persons with disabilities are prevalent, an equally stifling reason is the lack of knowledge of what it really takes for a person with disability to keep a job in open employment. As a consequence, people with disabilities fall out of jobs and this reinforces the stereotype that they are 'better suited' to be in alternative segregated settings such as sheltered workshops. Consequently, a large number of persons with disabilities miss out on opportunities for full participation in the labour market.

Figure 1 provides an overview of the conceptual model. It encapsulates the different levels of influences on a person with disability using the ecological systems theory with QoL and independence as outcomes.

Figure 1

Conceptual Model

Adaptation of the Ecological Systems Theory (Bronfenbrenner) to Quality of Life for the Person with Disabilities

- Attitudes
- UNCRPD
- ICF

- Economics of hiring and retaining PwDs
- Corporate Social Responsibility
- Inclusive public health systems

- Relationships
- Person-centred Practice
- Positive Behaviour Support
- Active Support
- Technology

- Transition Planning
- Active Support
- Evidence-based Practice
- Person-centred Planning

MACROSYSTEM
- National policies, schemes, grants promoting inclusion e.g. employment, education, health
- Societal attitudes towards inclusion
- Data-driven polices, programmes

EXOSYSTEM
- Systems that influence the person e.g. companies, healthcare, schools, communities

MESOSYSTEM
- Situational/contextual factors
  - Relationships with support workers/volunteeers
  - Accommodations and supports

MICROSYSTEM
- Family/caregiver factors
- Disability support agencies
- Disability Advocacy groups

Person with Disabilities

- Life events
- Career aspirations
- Existentialism

- **Quality of Life**
- **Independent Living**

The model also incorporates the specific disability concepts and best-practice enablers that are pertinent at the different levels of ecological influences. At a microsystem level, best practice enablers such as transition planning, active support, EBP and person-centred planning would feature prominently. For example, with data analytics driving evidence-based practice and outcomes-based decisions, there needs to also be an emphasis on the need for job support agencies to make decisions on job matching, job placements and job support based on data, rather than subjective inferences and opinions. In this vein, the model advocates the need for a diagnostic

tool that not just systematically assesses the risk of fall-out of a person with disability in a particular job, but also informs the specific areas of support needs of the person in that job.

The mesosystem level has situational/contextual influencers such as relationships, accommodations and support. The quality of relationships that the person with disability has with the people around him/her in the workplace (e.g. job coach, his/her line supervisor or manager as well as his/her peers in the workplace) is another crucial indicator of an inclusive work setting and consequently a protective factor for job sustainability (Gilbride, Stensrud, Vandergoot & Golden, 2003; Butterworth, Hagner, Helm, & Whelley, 2000). Hence, emphasis should also be placed on the enablers that facilitate the development of these relationship of supports and inclusion that the person with disability has with those around him/her. In this vein, enablers such as person-centred practice, learning theory and active support are significant at this level.

Additionally, technology would also feature at this level from the perspective of accommodation and support. In this age of digital disruption and the increasing reliance on technology in workplaces, it is almost impossible to ignore the role of technology when discussing sustainable employment for persons with disabilities. Studies have shown that technology can either displace jobs typically held by persons with disabilities or that it in fact can increase the accessibility to a more diverse range of jobs for persons with disabilities (Wolbring, 2016). Hence, the support structure for a person with disability in employment should be fluid enough to allow for developments in technology so that technology is not a disruptor but an enabler for persons with disabilities in OE. Damianidou, Foggett, Arthur-Kelly, Lyons and Wehmeyer, (2018) found that applied cognitive technology seems to support

people with intellectual and developmental disabilities to better achieve employment-related outcomes. Similarly, Mihailidis, Melonis, Keyfitz, Lanning, Van Vuuren, and Bodine, (2016) described a new technology that uses advanced sensing and artificial intelligence to monitor and provide assistance to workers with cognitive disabilities during a factory assembly task. Hence, technology should be seen as a possible avenue to facilitate inclusion by creating more high level jobs for persons with disabilities, particularly those with higher support needs (Wisskirchen, Biacabe, Bormann, Muntz, Niehaus, Soler & von Brauchitsch, 2017).

At the exosystem level, where systems in the community influence the outcomes for the person with disabilities, inclusive public health and education systems as well as economics of hiring and retaining persons with disabilities are important concepts, as are enablers such as corporate social responsibilities of companies. Additionally, the importance of an inclusive workplace has been well documented. For example, we know that to maximise OE success for persons with disabilities, HR policies and processes right down to department specific processes need to be inclusive. Hence, there is a need for inclusive practices to be adopted at all levels of the organisation which employs persons with disabilities.

At a macrosystem level, the extent of alignment of government policies, schemes and societal attitudes are with ICF and UNCRPD principles would have an indirect impact on QoL of persons with disabilities. Hiring managers, supervisors and colleagues are part of the larger society and would take on societal acceptance and advocacy for a more inclusive open labour market in terms of their 'readiness' and 'willingness' to hire, train, support and retain employees with disabilities. Additionally, the establishment and regular updates of a disability national database allows the data-driven approach to policy and programme development.

While the conceptual model cuts across different disability contexts e.g. education, employment, health and community living, in the context specific to open employment, the model advocates for concepts, approaches and enablers that are broad enough to be applicable to any industry and any disability type. People with disabilities, particularly those with intellectual and developmental disabilities, tend to be employed in limited industries such as food and beverage, retail and hotels. As the economy opens up and technology has a greater influence in the type of jobs available, it is important that more jobs in 'non-typical' industries are made available for persons with disabilities, so these jobseekers stay relevant in the digital age. Advocacy is needed for people with disabilities to be employed in a broader range of industries given the right support structures. Houtenville et al., (2015) found that service-producing industries are more likely to actively recruit workers with disabilities when compared with goods-producing companies and that customer attitudes toward people with disabilities seem to be a bigger concern among leisure and hospitality companies compared with other service-producing industries. They also found that with respect to coworker attitudes, companies in the manufacturing and transportation/warehousing industries are the most likely to report coworker attitudes as a challenge when hiring people with disabilities. Importantly, they also emphasized that while leisure and hospitality companies are more likely to report that the cost of accommodations is an issue when hiring people with disabilities, they are less likely than goods producing industries to report that the nature of the work is such that it cannot be effectively performed by people with disabilities.

Conclusion

Historically, the concept of Disability has been explained through multiple variations. Pfeiffer (2002) described nine versions- the social constructionist version,

the social model version, the impairment version, the oppressed minority (political) version, the independent living version, the post-modern (post- structuralist, humanist, experiential, existential) version, the continuum version, the human variation version, and the discrimination version. Each of these versions were borne out of unique contexts in a specific time in the evolution of society. For example, the oppressed minority and discrimination versions have a strong human rights and advocacy focus. The conceptual model of disability for this thesis would align most appropriately to the independent living and post-modern versions as both these models emphasise outcomes of independence and QoL. Further, a conceptual model that would guide the argument and thinking in improving the independence and QoL for persons with disabilities needs to be based on supports rather than deficits. Hence, adopting a frame of independent living and post-modern existential versions of disability, driven by concepts of human rights (UNCRPD) and the International Classification of Functioning (ICF) would appear relevant in optimizing outcomes of independence and QoL.

Additionally, implementation of best-practice enablers such as person-centred approach, active support, PBS, evidence-based practice and transition planning are crucial supports and intervention levers to overcome some of the existing barriers to persons with disabilities achieving independence and a better QoL. For example, given that the degree of fit between a job and a person with disability is dynamic and ever-changing, it would appear that these enablers would help better establish the degree of fit so that the risk of the person falling out of the job is reduced. This would be important, given that work capacity is one facet of QoL in the WHO QoL framework (WHO, 2011).

The understanding of the relationships amongst these concepts and enabler when conceptualized using the ecological systems theory, points to a need to also overcome macrosystem factors such as attitudinal barriers of society to creation of inclusive environments in the community (healthcare, employment, education), increased dependency on technology in workplaces as well as the lack of intervention focus on environment and the systems instead of just the person. This is aligned with positive behavior support of the 'problem lies with the environment rather than the person'. For example, in the employment context, instead of just looking at the deficits of the person on the job, there needs to be emphasis on the need for continual employer engagement, education and capacity building so that co-workers, supervisors and managers who interact with employees with disabilities are always best placed to provide active, person-centred and positive support in an inclusive work environment.

Another key emphasis of the conceptual model is an evidence-based approach where inclusion and QoL outcomes for persons with disabilities are data-driven, at the microsystem level. For example, in the context of employment, job placement and support decisions are made based on systematically measured data and evidence rather than subjective opinions and 'ad-hoc' job support/training methodologies. The conceptual model provides a frame for reviewing existing OE models and the different profiles of disability they cater for.

Chapter Three: Analysis of Open Employment Concepts and Models

Chapter One reviewed the international and Singapore landscapes of open employment of persons with disabilities. This has provided an insight into the lack of success in the placement of persons with disabilities in jobs in the open labour market, as well as the possible reasons for it. Chapter Two has dissected the disability approaches, concepts and best-practices to suggest an overarching conceptual model that incorporates these issues. Next, it is important to delve deeper and look at the existing concepts and models of open employment for people with different types of disabilities. Although literature covers a wide range of concepts and models for different types of disability employment, including sheltered and enclave employment, this section will focus only on concepts and models that refer to open employment. The background of each concept/model will be discussed and critiqued to understand the gaps within each. Vandergoot, (1984) pointed out that providing employment for people with disabilities has been the mission of vocational rehabilitation since the initiation of the first rehabilitation legislation. However, more needs to be done to accumulate knowledge of open employment [1] placement concepts and models internationally. This chapter reviews important open employment concepts and models for different types of disabilities in the literature as well as assessments of employment outcomes.

Train-Place vs Place-Train models for persons with disabilities

Staff of traditional facility and work adjustment programs usually trained individuals for a period of time and then tried to place them successfully in a

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[1] 'Open Employment' refers to employment within the open labour market, with natural and/or job coaching supports in place.

community job. On the other hand, community-integrated services (i.e., supported employment) required practitioners to find the placement first, and then provide the training. The traditional approach, often referred to as train-place, provides for the development of job ready skills and behaviours, followed by the location of suitable employment (Szymanski, Handley-Maxwell, Hansen, & Myers, 1988). The train-place model is based on the assumption that all people with disabilities progress along a developmental continuum, requiring prerequisite skills (or job readiness) training (Botterbusch, 1989). Job readiness training is intended to prepare individuals to meet the general demands of work in areas such as attendance, punctuality, and quality of work (Wuenschel & Brady, 1959). The job readiness model is an educational model which requires the ability to generalize a whole host of job skills to a cluster of jobs (Szymanski et. al, 1988). Another assumption of the train-place model is that people with disabilities are better off in environments which separate (and protect them) from mainstream society. Numerous research and outcome studies have brought the train-place approach under scrutiny in education and rehabilitation (Bellamy, Rhodes, & Albin, 1986; Horner, Meyer, & Fredericks, 1986; Noble & Conley, 1987). However, these criticisms of the train-place approach came at a time when the research emphasis was moving to look at people with moderate to very high support needs, who had challenges in generalisation of skills. This then gave rise to the place-train model.

The place-train model, a community integration approach to placement, is often used as a synonym for supported employment. Although there are numerous variations of the place-train model, each model has four common features (Botterbusch, 1989): (1) placement is in competitive employment; (2) intensive training on the job site; (3) training is dependent on task analysis information, and the

use of learning theory and ABA, with ongoing assessment integrated throughout the training process; and, (4) follow-up services and advocacy are provided throughout the period of employment, rather than ending after a fixed follow-up period.

The train-and-place model tends to encourage selective placement which is the assessment of capabilities, needs, and characteristics of clients, and the subsequent matching to compatible jobs (Vandergoot, 1984). Geist and Calzaretta (1982) added, "selective placement involves matching the client with a job, while the placement practitioner acts as a resource person, agent, and advocate in obtaining the job leads, making the employer contacts, and even accompanying the client to the interview" (p. 14). Olney and Salomone (1992) designated selective placement as unsuccessful and resulting in poor job satisfaction, due to the controlling role of the rehabilitation professional and the non-participatory role of the job seeker. On the contrary, the place-and-train model tends to facilitate client-centred placement, in which the client assumes responsibility, secures job leads, contacts employers, and makes placement decisions (Salomone, 1971). Salomone believed that people with disabilities may be more inclined to leave their jobs when they have been uninvolved in the placement process. Marrone, Gandolfo, Gold, and Hoff (1998) also noted that an essential element of helping people keep good jobs is having the job seeker direct the job search. Personal involvement on the part of the job seeker makes finding the job the individual's success, and contributes to his/her self-esteem and confidence (Marrone et al., 1998). Such involvement also develops the skills of the job seeker that will be needed to find other jobs and advance in careers.

Although both models are adopted internationally, the place-and-train model has been regarded as one to be more in line with person-centred and customised employment where employers need to be more willing to accommodate and provide

customised support for each person with disability they hire, compared to train-and-place where there is greater emphasis on the person to fit the needs of the job. However, the disability type appears to be a moderating factor as the train-place model has been found to be useful for people with certain types of disabilities, such as sensory or physical disabilities whereas the place-train model has been found to be more effective for people with intellectual disabilities and autism spectrum disorder (Nøkleby, Blaasvær, & Berg, 2017). Furthermore, there is dearth of evidence-based assessments to inform employers and job support agencies as to what are specific customised processes and support structures to be put in place for successful place-and-train employment.

In reference to the conceptual model outlined in Chapter Two, the train-place and place-train models of OE appear to target the person, mesosystem and exosystem levels. The train-place model focuses mainly on the person-level factors and improving the 'readiness' of the person to 'fit' a job in the open labour market. With the place-train model, the reliance is on the mesosystem level factors such as accommodation and support as well as relationships with co-workers and supervisors. However, it would appear that with either of these models, the factors at the other levels of the model are not given as much weight as training and supports. This would include microsystem factors like the family of the person, exosystem level factors such as employer policies, culture and technology as well as macrosystem level factors such as attitudes of society and government schemes and policies regarding inclusive OE.

Benchwork model for persons with intellectual disabilities

The Benchwork Model was designed to provide employment to persons whose severity of their intellectual disability exceeds the capacity of employers in the open labour market to provide support and hence excludes them from finding jobs in the community (Bellamy, Horner, & Inman, 1979). Productivity and a wage rate are determined and the model seeks to increase individual productivity rates. The Benchwork Model achieves community-based integration by locating itself in the larger community. These integrated settings provide ample opportunities to work, recreate and socialize in natural settings. Botterbusch (1989) described this specialized model as one that provides employment in assembling electronic and other small components, operates as small, single-purpose companies as well as one where companies provide employment and other services to approximately 15 persons who are severely and profoundly intellectually disabled.

However, a criticism of the model is that it is in many ways similar to the traditional sheltered workshops where contract work is secured, and the trainee is taught to assemble a fabricated assembly (Botterbusch, 1989). Additionally, with increased use of automation and technology, the long-term viability of such production-type work is questionable. In reference to the conceptual model outlined in chapter 2, the benchwork model falls short in two main ways: a) not advocating for an inclusive labour market and the rights of persons with disabilities to have equal opportunities as well as b) not focusing on QoL improvements as an outcome of employment.

Enclave and work crew models

      The Enclave model involves groups of individuals with disabilities who work with each other in community-based work settings, usually at a host business or company. The work crew approach involves a slight variation to the enclave model in that it involves a group of individuals with disabilities moving around to different locations in the community performing specialized contract services (Bourbeau, 1989). Work crew and enclave models may also involve disability support agencies securing the business contracts and supporting the employer with the necessary supervision and training. Coker, Osgood and Clouse (1995) found the enclave was a useful model that had better outcomes than sheltered employment. Additionally, they present a viable option for persons with moderate to severe intellectual disabilities to find meaningful employment within community settings, compared to being in a sheltered employment setting (Rusch, Trach, Winking, Tines, & Johnson, 1989). However, it was also found that the outcomes were inferior to supported employment (Coker et al., 1995). Further, these models arguably present a barrier to inclusion placing a person with disability together with other persons with disabilities in the workplace segregates them from their colleagues without disabilities (Kregel, Wehman & Banks, 1989). It further reinforces the stigmas and stereotypes of employees with disabilities and does not push for processes and systems in the organisation to be inclusive. Rather, the organisation develops separate systems, processes and policies for their employees with disabilities working in an enclave.

Systematic Instruction as an approach for persons with intellectual disabilities

Early research on vocational training demonstrated that task acquisition was possible for persons with moderate-severe intellectual disabilities if proper task analysis and systematic instructions were used (Bellamy, Horner & Inman, 1979; Gold, 1973). Following which, the focus shifted from task acquisition to work settings and how persons with intellectual disabilities could work alongside non-disabled workers in competitive work settings (Wehman, 1981).

Systematic instruction gained popularity and became a component of major OE models because of their focus on functional skill acquisition rather than a developmental approach which disadvantages persons with severe learning difficulties. The skills that are needed for the workplace are identified for instruction on the premise that the persons with intellectual disability can gain competence in the workplace by being taught and reinforced the specific skills that are needed for the job (Gaylord-Ross, Forte, Storey, Gaylord-Ross & Jameson, 1987). This helps persons with intellectual disabilities to overcome the challenge of generalising skills across settings, persons, materials or language (Horner, McDonnell & Bellamy, 1985). Hence, the model advocates for training and instruction to be delivered in the actual work settings, rather than in classrooms.

However, systematic instruction as an approach alone does not provide sufficient insight on other factors that are needed to support the person with intellectual disability on the job, such as inclusive work environments, extent of customised work accommodation and support as well as caregiver-related support factors. For example, Gaylord-Ross et al., (1987) implied that the perception of the employer of the competency of the person with intellectual disability could be a

barrier to the person achieving success in the workplace despite systematic instructions being in place. In reference to the conceptual model outlined in chapter two, systematic instruction appear to align at more at the person-level , where the focus is on teaching the person the functional skills needed for a specific task on the job. While the way in which systematic instruction is incorporated within OE models such as train-place and place-train has evolved somewhat to recognise the importance of the environment, the balance still seems to shift to the person. Consequently, this does not provide answers to address the gaps that exist at the microsystem, mesosystem, exosystem and macrosystem levels.

School-to-employment transition models for persons with intellectual disabilities

There have been a number of school-to-employment transition models over the years that were developed to inform how to successfully transit a student with intellectual disabilities from school to employment in the community. Will's Bridges model was an important initial representation of perceived connections between school experiences and post-school employment and the services that students typically utilized as they moved from one environment to the other (Will, 1984). The Bridges model also articulated federal initiatives related to services for school-to-work transition.

Halpern's revised transition model expanded transition-related theory and discussion beyond a focus on employment to include outcomes associated with other aspects of living in one's community (Halpern, 1985). That is, it featured community adjustment as the primary target of transition services, supported by the three pillars of residential environment, social and interpersonal networks, and employment.

A third model, Wehman's Three-Stage Vocational Transition Model (Wehman, et al., 1985), focused more on process components rather than on the theoretical and philosophical components addressed by Will (1984) and Halpern (1985). This more detailed representation of the transition process consisted of a series of steps beginning several years prior to a student's exit from school and extending one to two years after school exit. Later, Halpern proposed that QoL be applied as a conceptual framework for evaluating transition outcomes, adding a number of variables associated with increased QoL in specific outcome domains (Halpern, 1993). In the UK, initiatives to promote supported employment for young people with learning disabilities while at school were also introduced. The Getting a Life project was introduced to improve transition so that more young people with intellectual disabilities got a paid job and a full life when they left school. Overall, employment rates for young people with learning disabilities in the project were around 18.8%, significantly higher than a control group at 6.3% who were not on the project (Beyer, 2012).

The Project SEARCH model in the United States (US) was developed to improve employment outcomes for youths with Autism Spectrum Disorders (ASD) and Intellectual Disabilities (ID) who were leaving school. The processes hinge on 2 main areas: setting a goal for employment, providing successive intensive internships in a community business and assuring collaboration between school and adult support staff. Other processes in the model include provision of intensive instruction in social, communication and job skills, visual supports as well as work routine and structure (Wehman, Schall, McDonough, Molinelli, Riehle, Ham & Thiss, 2012). More individuals with ASD and ID were reported to gain competitive employment with higher wages compared to traditional supported employment

programmes (Hedley, Uljarevic, Cameron, Halder, Richdale & Dissnayake, 2017). In the United Kingdom (UK), the Office of Disability Issues led to a pilot study of Project SEARCH, which offered one year supported internships in a range of jobs offered by large public sector employers with job coach and educational support onsite. The model is based on that developed at the Cincinnati Children's Hospital and has led to a further round of supported internship pilots linked to the reform of Special Educational Needs arrangements in England, linked to colleges, which highlights the need for employment as a transition outcome. Some sites using the Project SEARCH model are now achieving employment rates of over 60% and the model provides a mechanism to offer vocational training input closely aligned to the supported employment model, one that leads to jobs (Beyer, 2012).

These models have served to direct attention to the issue of transition and have helped focus research and policy on educational and adult service practices associated with promoting employment and other desirable adult outcomes. There has also been a wealth of research on transition and the tracking of outcomes, such as the national longitudinal transition study (Wagner, Newman, Cameto, Levine & Garza, 2006). However, there is still no working model that links theory with transition practice in a systematic manner. Such a model, in association with a well-conceived measurement system, would be useful for reporting and comparing status, tracking changes, predicting future performance. When understanding the transition models with the conceptual model in chapter Two, it would seem that these models do not provide sufficient coverage of the factors at the exosystem and macrosystem levels, such as technology use, employer policies and culture, societal attitudes and government policies and schemes on disability OE.

IPS and PACT models for persons with mental illnesses

The IPS model of supported employment was developed and used widely for the intellectual and developmental disability population but has also been regarded as an established employment support model that achieves better work outcomes for people with severe mental illness (Becker, Flack, & Wickham, 2012). Frey & Godfrey (1991) reported on a similar placement approach for persons with severe and persistent mental illness offered by the PACT in Madison, Wisconsin. In both the PACT and IPS models, both clinical and rehabilitative services are integrated within the "continuous treatment team approach," also known as "training in community living". The desired outcomes include the prevention of recidivism and reduction of primary symptoms; increased life satisfaction; lower subjective stress; and improved social and vocational functioning. There is also a focus on both person factors and factors of the job. The rationale of the IPS and PACT models is that job matches in line with personal preferences facilitate job retention. The IPS model in particular also proposes the assessment of outcomes using a range of measures including the IPS Fidelity scale which was developed and used to assess adherence of programmes to evidence based practices (Bond, McHugo, Becker, Rapp & Whitley, 2008; Cocks & Boaden, 2009; Resnick and Rosenheck, 2007). According to Riches and MacDonald, (2016), employment support programmes that are aligned to the IPS model achieved a range of more effective outcomes in the mental health field than other models of operation. However, as much as the IPS and PACT models of service delivery have been widely used with the IDD population, most of the fidelity studies have involved mental health. Further, although the IPS fidelity scale have been well established, its validity for the other disability types aside from mental illness is relatively unknown.

Models based on Self-determination, Person-centered planning and QOL

The rise of self-determination and person-centred planning, with emphasis on choice and self-directed employment models, has gained traction due to a push for a broader range of outcomes such as economic self-sufficiency, independence, security, competence, achievement, accomplishment, personal growth, self-identity, self-esteem, contribution to society, creativity, variety, relationships, socialisation, developing friendships as well as community participation (Riches et al., 2016). This is aligned with the person-level and microsystem level factors of the conceptual model outlined in chapter Two, particularly around factors within the person and the focus on relationships and QoL. The international literature has documented that self-determination is impacted by environmental factors, including living or work settings; and by intra-individual factors, including intelligence level, age, gender, social skills and adaptive behaviour. As self-determination has been correlated with improved QOL and if QOL is regarded as one measure of successful employment, it appears then that self-determination and person-centred planning should be an important component of the processes that underlie OE placement and support. Importantly, there is evidence that people with intellectual and developmental disabilities as well can become more self-determined, if provided adequate supports (Wehmeyer & Palmer, 2003).

The WIT Works (Whatever It Takes — Works) is an example of a person-centred model that aims to provide placement opportunities for individuals who have sustained a brain injury (Tew-Washburn, 1984). WIT Works' model includes vocational counselling, interest and aptitude testing, career exploration, and job shadowing. An important aspect of each individual's program is the development and involvement of the participant's circle of support. WIT Works allows individuals the

chance to experiment and assess their abilities in a work environment. Depending on individual goals, placements may be fully or minimally supervised by a job coach. WIT Works assists the individual to be as independent in the job search process as possible. WIT Works has been successful because its services are designed on an individual basis, concerns are addressed immediately, and participant's primary control of their vocational decisions.

Similarly, QOL is a concept that has been receiving increasing amount of attention and has been a fulcrum for new disability legislation and policy internationally. For example, the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) has emphasised the need to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity (Parmenter, 2011). Further, the UNCRPD advocates for the full and effective participation in society for persons with disabilities that is on an equal basis with others. In Singapore, the Enabling Masterplan 3, which is the government's strategy for the social services sector, is heavily aligned to the need for services to be centered around QOL of persons with disabilities and their caregivers. Increasingly QOL is being regarded as a pertinent component in the evaluation of employment outcomes for people with disabilities (Kober & Eggleton, 2009). Aspects of QOL that have been proposed to be part of employment support models include job satisfaction level, increases in personal independence, mobility, social networks, degree of environmental control and psychological well-being (Riches et al., 2016).

Additionally, employment support processes and models based on self-determination, person-centeredness and QOL are increasingly being emphasised in legislation and policy internationally. However, the view of disability experts is that

services and programmes in disability employment have not done enough to embed person-centeredness and QOL in service delivery. Rather, the focus still is one that is more economic in nature. Hence, more needs to be done in terms of measuring employment outcomes more broadly to also encompass self-determination, inclusion, person-centredness and QOL (Cocks & Harvey, 2008; Riches et al., 2016). Further, there needs to be more coverage of factors at the exossystem and macrosystem levels such as employer policies and culture as well as societal attitudes, government policies and schemes related to disability OE.

Customized employment models for persons with disabilities

Customized Employment is a strategy that provides persons with disabilities who have significant barriers to employment, with an alternative to traditional, competitive jobs. Customized employment advocates for four main processes: discovery, job search planning, job development/negotiation and post-placement support (Callahan & Gold, 2002). According to a new definition used by the US Department of Labor, Customized Employment refers to individualizing the employment relationship between employees and employers in ways that meet the needs of both. It is based on an individualized determination of the strengths, needs and interests of the person with a disability and is also designed to meet the specific needs of the employer (Wehman et al., 2016).

According to Riesen, et al., (2015), customized employment relies on a negotiated rather than competitive approach to employers; therefore, job developers must be available to assist applicants to develop personalized proposals for employers. This approach to employment offers the promise of welcoming all persons with disabilities who wish to work into the generic employment system and

into a job that fits their needs. Importantly, it also defines the critical role of employment related services to support both the individual with a disability and the generic system to make employment a viable option for persons once thought to be unemployable. While customized employment is well spoken about within the disability field, it is a concept that is also applicable to people without disabilities. For example, it is intuitive that if a non-disabled person's interests, career aspirations and strengths were a good fit for a particular job in terms of the job scope and career progression, he/she is more likely to succeed in sustaining on the job as compared to if the person-job fit was poor.

The model suggests a collaborative approach to devising a customized employment plan which, in turn, informs a customized process in job development. The process to devise the plan involves a customized planning meeting being held with the applicant, family, friends, advocates, the provider, agency representative, counselors and others chosen by the applicant. This planning meeting adheres to the values associated with the best of person-directed, person-centered values (Callahan et al., 2002).

Job finding efforts are then initiated based on the "blueprint" developed during the customized planning meeting. It is essential to discover any of the applicant's relationships or their support circle's relationships with targeted employers. This helps to make initial contacts with prospective employers. In most cases, conventional job descriptions will not be appropriate for an applicant with significant life complexities. Therefore, the provider must look beyond job openings, to identifying the unmet needs of an employer. Armed with the knowledge about the applicant, the provider can then look for job tasks and work cultures that fulfill the applicant's criteria for a successful job match. Tours of specific employment sites are

used to identify the unmet needs of an employer by looking at job tasks, employee routines, and worksite cultures.

Jobs are developed when an employer needs the tasks offered by the applicant and negotiation occurs to address the applicant's conditions. The "blueprint" match and the negotiation paired with the employer's unmet need, is a win, win for everyone. This is aligned to the person, mesosystem and exosystem levels of the conceptual model outlined in chapter Two, where aside from factors internal to the person (support needs), external factors such as the family, job coach support and employer accommodations/support are acknowledged as contributors to successful customized employment.

The criticism of customised employment is that there is a dearth of evidence on how to make it sustainable. Regardless of which form it may take (job carving, resource ownership, or self-employment), sustainability is a crucial element to consider when planning for the longevity of supports. This often makes it a complex process for employers and job support agencies to sustain customised employment. For example, in Singapore, to be classified as being employed in the open labour market, a person needs to work a 'full-time' job which automatically excludes persons with moderate to high support needs, especially those with intellectual and developmental disabilities. This could be because persons with intellectual and developmental disabilities, especially those with higher support needs, are perceived as incapable of working the hours required of a 'full-time' job.

The avenues toward vigorous sustainability, that is, how to keep customized employment as an on-going option for people with disabilities, is as diverse as the providers, families, employers and funders that make up the communities where the

customized employment is taking place. Sustainability for customised employment comes in two central forms: 1) provider sustainability and 2) individual sustainability (Citron, Brooks-Lane, Crandell, Brady, Cooper, & Revell, 2008). Provider sustainability represents agencies that work with people with disabilities to secure meaningful, long-lasting employment should always be thinking about how to find, secure and utilize new and unfettered funding sources. Similarly, individual sustainability represents the customized efforts, tailored supports and continuous planning on behalf of a person engaged in the pursuit of customized employment (Citron et al., 2008). However, while this complexity is acknowledged by employers and job coaches, there is a lack of systematic and structured model to inform the processes to be put in place to enable sustainable customized employment.

How effective are existing OE processes and models?

While the different models for disability OE and the processes that underpin these models have been discussed, the issue is evaluating the efficacy these models and processes in terms of successful and sustainable OE. In that vein, a fidelity scale is an assessment tool used to measure the extent to which an intervention, model or practice is implemented as intended. It is important that such tools are used in employment to measure outcomes of employment models in OE (Bond, Becker, Drake & Vogler, 1997).

The Employment Services Fidelity Scale assesses the extent an employment support service is operating an employment program effectively using evidence-based practices. It covers the various stages of program intake, engagement, asset-based assessment, job preparation and job matching, job search and placement, job coaching as well as on-going support. One disability employment

service provider in Australia, NOVA, uses this scale for their service whose users have a range of disabilities to ensure their program is consistent across an number of outlets operating across various geographic locations. However, while fidelity scales are useful in terms of assessing the quality of an employment support service, it does not inform the risk of fall-out and specific areas of support needs that a person needs once placed on the job (Riches et al., 2016).

Although there are other vocational assessment tools that are used to assess the work readiness or work skills of the person with disability, there is a lack of objective and systematic assessments to evaluate the efficacy of a model for OE. Further, there is no assessment tool to help job coaches or employers identify specific areas of risk of fall-out from OE upon placement in the job. Despite using worksite coaching checklists and on-going support checklists, a challenge is determining what is an 'acceptable level of proficiency' for the person to sustain in the job.

Additionally, the models do not adequately address the extent and type of post placement job support that is crucial to successful OE. Riches et al., (2016) proposed that training and coaching should continue until the person achieves the standard expected at the workplace. During this time, work-related problems or challenges are addressed and employees with disabilities are able to achieve personal goals and as well as key employment targets. Internationally in established employment support services, job coaches use standardized documents in post-placement support to assess the level of support that the person requires on the job from the perspectives of the person and the employer or job coach (Riches et al., 2016). However, a key challenge is that, usually, the case that once the person

achieves an acceptable level of proficiency on the job, the intensity of the support is reduced to that of monitoring.

Additionally, the existing models were developed for particular disability types and some were borne out of specific types of work settings (e.g. benchwork model). There is no model that was developed to be applied to all disability types and across any job industry/work setting. This has implications in terms of how employers employ and support employees with different types of disabilities without the knowledge and skills to support them adequately.

Further, these models do not address factors at the larger systems such as employer culture and inclusive practices, societal attitudes as well as government supported schemes and policies to facilitate OE. As discussed in chapter 2, these factors would also contribute towards employment outcomes for persons with disabilities as well as their overall QoL.

Conclusion

This chapter scanned the literature and reviewed models of OE for people with different types of disabilities. While there have been different models that inform best practices for employment for people with specific types of disabilities, it does not help employers who are looking to hire people with different types of disabilities. Hence, it is evident that a gap in the current landscape of OE is that there is no one model for successful OE that employers and job support agencies can take reference from to support people with different types of disabilities in a work setting. In line with this, there is an absence of a framework encompassing all relevant sustainability domains to guide service providers, employers and caregivers in terms of providing holistic support towards sustainable OE for the person with disability. Riches et al.

(2016) had recommended that a framework was required to guide persons with disabilities, policy makers, service providers, employers and caregivers in the transition to employment process so as to optimise chances of sustainability after placement.

Additionally, while models on customized employment tell us that it is important that there is a high degree of fit between the support needs of the person with disability and the support provided in a particular job, there is a lack of understanding amongst employers and job coaches on how to systematically assess this degree of fit for each person with disability. This makes it difficult for employers to put in place processes and systems in the work environment when employing people with different types of disabilities as each employee with a disability presents with different types and extent of support requirements. Further, there is a dearth of diagnostic tools that can be used by employers and job coaches to systematically inform the sustainability of a person with a disability on a specific job.

Chapter Four: Characteristics of Sustainable Open Employment

Introduction

The earlier chapter discussed and critiqued the different models and processes of OE for persons with different disability types as well as identifying gaps in disability OE that emerged from the critical review. The limitations lie with the fact that there is no one model to inform employers and job coaches on how to facilitate sustainability in jobs for people with different disability types as well as the absence of a systematic and structured assessment of person-job fit. This chapter explores the characteristics that are deemed as crucial for persons with disabilities to sustain in jobs successfully. The characteristics are presented according to their alignment with the different system-level factors (Person-level, microsystem-level, mesosystem-level, exosystem-level and macrosystem-level) outlined in the conceptual model in chapter two.

Sustainability Characteristics in Disability Open Employment

Person-level characteristics

According to Vornholt et al., (2018), successful and sustainable employment of people with disabilities in the open labour market is a dynamic process of interaction among different factors. This would include person characteristics. Raskind, Goldberg, Higgins and Herman (1999) and Werner (1993) found that self-awareness, pro-activity, perseverance, goal setting, effective use of social support systems, emotional stability and emotional coping strategies are important person factors. This is aligned with the conceptual model in Chapter two, which suggests the importance of factors internal to the person to overall QoL outcomes.

Stahl (2015) provided further factors for consideration. He reported that type, extent, order and intensity of job training received by person with disability (e.g. place and train, train and place, job readiness training) influence sustainability and should be considered when supporting persons with disabilities in OE.

There is also evidence that people with disabilities are rather similar in their expectations of a job as their non-disabled counterparts. Ali, Schur & Blanck (2011) found that relative to their non-disabled counterparts, non-employed people with disabilities are (a) as likely to want a job but less likely to be actively searching, (b) as likely to have prior job experience, and (c) similar in their views of the importance of income, job security, and other valued job characteristics. The results, which albeit vary little by type of impairment, indicate that the low employment rate of people with disabilities is not due to their reluctance to work or different job preferences. Combined with evidence that a large share of new jobs can be performed by people with disabilities, Ali et al. (2011)'s findings point toward the value of dismantling barriers to employment facing many people

While we have some understanding of person factors that contribute towards OE sustainability, there is a lack of application of that understanding in terms of how to translate that into support for the person in the work setting. In support of this, Parmenter (2011) expressed that while the extent of generalisability of life skills has been reported to be a key factor in persons with disabilities sustaining employment, not enough has been studied to identify the kind of support needs that has to be put in place in the person's environment to facilitate this generalisability. This then suggests that as we assess person factors, it is necessary to also look at employer factors as they influence each other more often than not. Graffam, Shinkfield, Smith & Polzin, (2002) found that employers rated person factors as most important, while

management and operational cost factors were rated as moderately important. Interestingly, social factors were rated as least important.

Microsystem level characteristics

While there have been considerable number of studies reported in the area of person factors, there is a paucity of research on caregiver and familial factors which contribute to OE sustainability of persons with disabilities. As outlined by the conceptual model in Chapter Two, the role of the caregiver/family in contributing to positive QoL outcomes for persons with disabilities, including employment, should not be understated. This would especially be so for those with intellectual and developmental disabilities as compared to those with physical impairments only. Nevertheless, given that there are individuals who have both cognitive and physical disabilities, caregiver support would be important to consider when evaluating the support needs persons with disabilities. At the very fundamental level, it appears consistent that the extent the caregivers are supportive of the person working in OE, the higher the chances of him/her sustaining in the job. Marrone, Balzell and Gold (1995) studied factors that contribute to employment supports for people with mental illness and highlighted family support as one of them. Family support factors seem to be crucial starting from much earlier in the person's life to when the person actually secures a job (Donelly, Hillman, Stancliffe, Knox, Whitaker, & Parmenter, 2010).

Martin, Marshall and Maxson, (1993) highlighted that it is important for families to provide their children with disabilities opportunities to plan, learn and manage their lives as they grow up so that it translates into positive adult outcomes later on. An example of this would be the family encouraging them to think about the future such

as saving for later years, getting married or buying a house. This would include employment as well.

Morningstar, Turnbull and Turnbull III (1995) further specified that family involvement in the transition process as well as in the self-determination process, are pertinent factors in the transition of a person with disability from school to adult life. An example of this would be the family initiating meetings to discuss the transition while allowing the person with disability to be actively involved in the meetings. Morningstar et al. (1995) also identified that extent of arguments and disagreements between family members regarding the planning process is a barrier to families helping the person with disability to plan for the future.

Job coaches also work directly with persons with disabilities within the microsystem level. Rogan, Hagner and Murphy (1993) outlined the roles of job coaches as: (a) using personal connections to enhance social support, (b) matching individual preferences and attributes to work-site social climates, (c) collaborating with work-site personnel to develop adaptations and modifications, (d) facilitating and supporting the involvement of work-site personnel; and (e) providing general consultation focused on person-environment factors that promote both the success of the supported employee and the overall business. Although the debate between the efficacy of job-coaching vs natural supports is ongoing, Storey, (2003) found that when job coaches' support is embedded within natural supports in the workplace, the employment outcomes tend to be better. Consistent with this, an alternative approach to integrating natural support to job coach support in a customer service and accommodation framework is more effective (Cheng, Oakman, Bigby, Fossey, Cavanagh Meacham & Bartram, 2018; Inge & Tilson, 1997)

Mesosystem level characteristics

The conceptual model outlined in Chapter Two indicated that workplace factors such as person-centred job support and accommodation influence the person with disability in OE at the mesosystem level, thereby contributing to his/her success in OE. In the same vein, existing literature has shed light on some workplace factors that contribute to sustainability of persons with disabilities in OE. WHO, in its report in 2011, highlighted that support given to the person with disability in terms of employment coaching, specialized job training, individually tailored supervision, transportation, and assistive technology can be important in sustainability of the person in the job. Similarly, Vornholt et al. (2018) posited that the nature of the job, the characteristics of the work environment, as well as the availability of supportive services and accommodations are important factors for the successful and sustainable employment of persons with disabilities. Corbière, Negrini and Dewa, (2013) found that other employer or workplace related barriers to sustainable open employment included a lack of health and safety policy, inappropriate work schedules, misunderstanding of disability, erroneous beliefs and lack of knowledge, fear, personnel practices and policies, poor teamwork, and non-inclusive organizational culture.

The role of the immediate supervisor of the person with disability is a common theme across current literature. Attridge and Vandepol (2010) found that the extent to which a supervisor provides critical incident response is crucial in job retention. Similarly, Dunst, Shogren and Wehmeyer (2015) found that open dialogue between employee and supervisor, facilitation of the person's participation in decisions related to developing job related goals and plan of action, as well as mutual respect, were important.

The importance of workplace accommodation was also reinforced by the findings from Vornholt, Uitdewilligen & Nijhuis, (2013), who highlighted that, in Germany, workplace adaptations, provision of specialist equipment and adaptive technologies at work, personal assistance and flexible employment contracts are all available to disabled employees and their employers.

The knowledge and application of principles of Active Support also appears to be an important employer factor in OE sustainability for persons with disabilities. A New Zealand study by Grant, (2008) highlighted that the higher the degree Active Support and self-determination practiced in the transition to OE by employers, the more pervasive is the culture of inclusiveness in the organization. This, in turn, leads to a higher the likelihood of the person sustaining in OE. Grant (2008) further elaborated by giving an example where the person with disability is assisted, but is allowed to take the lead in the different stages of the placement process i.e. job search, interview and placement. This is also aligned to the conceptual model in Chapter Two, where Active Support is identified as a key enabler in facilitating the improvements in QoL at the microsystem and mesosystem levels.

Another key employer factor that was highlighted by Grant (2008) was the extent to which supervisors/managers were willing to collaborate with disability agencies and people with disabilities. This willingness to collaborate and engage in collaborative work with the person with disability in the centre of it, was key to the person sustaining in OE.

We do not know the extent and characteristics of the collaborative support that is adequate to predict sustainability. Vornholt et al. (2013) did, however, attempt to shed some light in this area. Their research from the Netherlands has shown that

the acceptance of people with disabilities by co-workers are influenced by three factors: (a) characteristics of the person with disability, (b) characteristics of the co-workers and (c) characteristics of the employer/organization This, in turn, has implications for the QoL, motivation and ultimately sustainability of employment for people with disabilities.

Exosystem-level characteristics

Employer factors extend to management and organizational levels as well. For example, the track record of the employer in hiring persons with disabilities an indicator of likelihood of job retention for persons with disabilities (Attridge et al., 2010). Additionally, support for the supervisors by higher management, a management belief that people with disability can succeed like anyone else are important part of building a culture of inclusiveness, which Dunst et al. (2015) highlighted as crucial in OE sustainability for persons with disabilities. Consistently, Murfitt, Crosbie, Zammit and Williams (2018) posited that a major barrier to employment of people with disability is negative attitudes that result in discriminatory organizational cultures.

Interestingly, Chan, Strauser, Maher, Lee, Jones and Johnson (2010) also highlighted the possible importance of the hiring practice of employers as an indicator of sustainability of persons with disabilities in OE. Specifically, they found that hiring efforts were associated with the company's diversity climate and inclusion of disability in diversity efforts.

Under the broad umbrella of a culture of inclusiveness, Dunst et al. (2015) explained that it is important for this culture to cascade from top-down and for it to be advocated and communicated to all employees, regardless of level. Dunst et al.

(2015) also pointed out that some indicators for culture of inclusiveness is the willingness of the supervisors and/or management to modify tasks to accommodate the person with disability, the level of initiation of discussion by management with professionals on job modification, the support given by management in implementing action plan as well as the management's focus on specific customized solutions to problems that persons with disabilities face at the workplace.

It has been shown that when hiring managers were not eager about people with disabilities and did not see persons with disabilities as reliable and productive employees, there was lesser inclusion efforts and consequently a greater risk of the person with disability struggling to sustain the job (Chan et al., 2010). Chan et al., (2010) also suggested that the provision of job accommodations training for hiring managers might improve their attitudes toward people with disabilities. Furthermore, intervention at the senior management level should focus on changing company policies to include disability as part of the company's diversity efforts.

Across existing literature, a work culture that advocates and facilitates inclusiveness as well as one that practises provision of customized accommodation and support appear to be rather consistent. Gilbride et al., (2003) reported findings that also mirrored this emphasis on work culture and employer support/ accommodation.

Aside from inclusive work culture, and organizational practices that promote customized accommodation and support, Gilbride et al., (2003) also highlighted the importance of appropriate job matching according to support required by the person with disability and the extent of that support given by the employer. Butterworth et al. (2000) summarised four salient characteristics of a supportive and inclusive culture in

the work setting. These are: a) multiple-context relationships and opportunities to mix with co-workers after work has finished for the day, b) specific social opportunities, including inclusive lunch/break rooms, c) managers building a sense of teamwork, personally being actively involved in supporting employees and emphasising workers' personal strengths and needs; d) interdependent job designs which provides a career pathways for the employees with disabilities. This is especially relevant as persons with disabilities generally stay in the same level of jobs for their whole career. In line with this, Lee and Newman (1995) interestingly pointed out a possible relationship between workplace accommodation, a climate of inclusiveness and work productivity of persons with disability in the organization.

However, while there is evidence to support the importance of workplace accommodation, a culture of inclusiveness and support for persons with disabilities to OE sustainability, it is important to also look at what might be possible barriers. Kaye, Jans and Jones, (2011) found that there are reasons for employers not to employ or retain persons with disabilities. These are the cost of work accommodations; lack of awareness of how to deal with persons with disabilities; the fear of being stuck with a worker who cannot be disciplined or fired because of possibility of a lawsuit as well as difficulty in assessing the person's ability to perform job tasks. Kaye et al., (2011) added that concerns over extra supervisory time and concern that the person with disability will not perform as well as non-disabled workers are also barriers.

Shier et al., (2009), in a focus group interview of people with disabilities, found that presence of workplace and employer discrimination were also factors impeding the sustainability of persons with disabilities in their jobs. Understanding these barriers, assessing them and collaborating with employers to see how best to overcome them appear to be key to increasing sustainability of persons with

disabilities in OE. Smith, Webber, Graffam & Wilson, (2004) reported that the existence of policies on employing people with disabilities, previous contacts with a person with a disability, and the level of the disability were all associated with more favourable attitudes. For example, advertising 'success stories' involving the employment of people with disabilities has been found to be a useful method to change attitudes of employers. It does appear that employers' view of the benefits of hiring persons with disabilities as outweighing the costs of supporting them is gaining prevalence. Tuckerman et al. (1999) found very positive employer attitudes toward workers with intellectual disabilities with high support needs. Olson, Cioffi, Yovanoff and Mank, (2001) showed that employers from firms in the United States of all sizes have favourable experiences in employing people with intellectual disabilities. In Singapore, the Disabled Persons' Association report in 2015 highlighted some more ways where employers can contribute positively towards persons with disabilities sustaining in their jobs. These suggestions centre around employer factors that mirror evidence from existing literature; namely employer support, workplace accommodation and a culture of inclusiveness in the workplace (DPA, 2015).

In line with building a culture of inclusiveness and positive working relationships with their non-disabled colleagues, the report suggested separating the essential and the non-essential functions in the job descriptions helps to assure a fair selection process for persons with disabilities. Additionally, building an inclusive culture also involves conducting disability awareness talks and sensitivity training to help other employees better understand their co-workers with disabilities. There were also some suggestions highlighted in the report that are related to employer support (DPA, 2015). The report explained that the role of supportive employers should be showcased more to serve as an example of how companies can hire persons with

disabilities in a successful and business-friendly model. It encouraged employers to publicise successful case studies of positive employment practices for persons with disabilities, the impact gainful employment has made on those with disabilities and the contributions they bring to any workplace (DPA, 2015).

Additionally, the report proposed that designating a manager or supervisor to deal with any issues that arise after employing a person with a disability are important employer factors in the Singapore context. This would include providing career grooming, consultancy services and customised training, as well as social inclusion audits to ensure inclusion in work settings.

Existing literature both in the international and Singapore contexts suggest the importance in considering employer factors when assessing sustainability of persons with disabilities in OE. Parmenter (2011) echoed this importance of employer factors. He pointed out that research consistently shows that on-going natural supports through a colleague or staff member at the work setting may contribute more to OE sustainability than external supports (through a job coach employed by a disability organization). However, he cautioned that while natural supports are proving to be a promising method of increasing the integration and support of people with intellectual disabilities in the workplace, a combination of job coaching and natural supports may be needed, tailored to individual circumstances and needs. This is further supported by Cheng et al., (2018), who found that employment outcomes were better when natural supports complemented ongoing job coaching. Provision of natural supports would appear to be a critical employer-related characteristic of successful open employment. Although there is acknowledgement of the importance of natural and external support, current

understanding is not deep enough to develop meaningful outcomes in terms of support needs for the person with disability.

Macrosystem-level characteristics

The lack of deep understanding of what it takes for employers to support sustainable OE for persons with disabilities can be viewed as a reflection of the lack of Government support for research to inform policies and schemes to help employers overcome the barriers to sustainable employment for people with disabilities. The Australian Chamber of Commerce and Industry (ACCI) released a publication to inform employers on the economic viability of employing and sustaining persons with disabilities. It also explained how employers can increase likelihood of sustainability by focusing on individualized support and accommodation as well as a strengths-based approach to ensure a good fit between the person's needs and the job demands (ACCI, 2012). In Singapore, there are government supported initiatives such as the 'Open Door' fund which employers can tap on to train their employees with disabilities as well as the 'Job re-design' programme where they can work with job support agencies to re-scope work tasks for employees with disabilities to better align to their needs. However, feedback from employers is that their lack of understanding of the different disability types and the inability to accurately sense the needs of each employee with a disability are barriers to accessing these funds effectively.

An example of how macrosystem-level factors have an influence on opportunities and support for persons with disabilities to enter and remain in the open employment market is that certain government policies and funding advocate for substitute vocational settings, such as sheltered workshops. These policies implicitly

assume that people with disabilities are generally unable to fully participate in open employment and that the productivity gap between people with and without disabilities is wide enough to shift the cost of those gaps from employers to publicly funded services such as sheltered workshops.

Placements of the majority of persons with disabilities in these settings are encouraged so long as policymakers feel it is a more economically alternative to the open labour market. However, substituted settings are typically frowned upon by disability rights advocates and the disability community. This has given rise to social enterprises, which are typically seen as businesses that are built on social causes, have been on the rise. Over the last 15 years, the concept of social enterprise has been raising an increasing interest in various regions of the world, as societies attempt to strike a balance between business and social impact (Defourny & Nyssens, 2010). Although social enterprises also provide job opportunities for persons with disabilities, there are drawbacks.

Firstly, sustainability is an issue if the social enterprise is not built on a model that is economically viable to carry on without long-term external funding as subsidies and grants tend to be temporary (Defourny et al., 2010). Secondly, there is a lack of knowledge on what makes a successful social enterprise which achieves its objectives both from a business and social perspective (Diochon & Anderson, 2011). Despite the growth of social enterprises, advocates still believe that lack of access to the open employment market is a barrier to the development of the social and job skills necessary for full inclusion into the society, and is thus a self-fulfilling prophecy. Additionally, such policies also keep employers from being aware of the capabilities of persons with disabilities and can reinforce misconceptions that they cannot be valuable contributors of the workforce.

Further, it almost becomes a case of working in favour of service providers to keep their funding model, at the expense of working towards placing and sustaining more persons with disabilities in open employment. In Singapore, for example, although definitive data on the number of persons with disability in full-time and part-time employment is not available, an important gap is that we do not understand the barriers to employing persons in a wider range of industries.

Summary

This chapter has summarised the characteristics of successful OE from the evidence in literature. Further, it has put forth a case for the possible categorization of these characteristics at the person, microsystem, mesosystem, exosystem and macrosystem levels, in alignment with the ecological systems theory (Bronfenbrenner 1977, 1979).and the conceptual model outlined in Chapter Two. However, identification of the characteristics of successful OE leads us to the need to delve deeper into understanding what are pertinent issues and barriers that continue to exist for persons with disabilities in terms of sustaining their jobs in the open labour market.

Chapter Five: Problem Statements and Aims of the study

This chapter presents a critical argument on the pertinent OE sustainability issues faced by persons with disabilities, as well as their barriers for success.

Problem Statements

There is research evidence why people with disabilities make reliable employees and there are business benefits for hiring people with disabilities (Parmenter, 2011; Riches et al., 2016). Emerson, Hatton, Robertson and Baines (2018) highlighted that the benefits of hiring people with disabilities included improvements in profitability (e.g., profits and cost-effectiveness, turnover and retention, reliability and punctuality, employee loyalty, company image), competitive advantage (e.g., diverse customers, customer loyalty and satisfaction, innovation, productivity, work ethic, safety), inclusive work culture, and ability awareness. They added that secondary benefits for people with disabilities included improved QoL and income, enhanced self-confidence, expanded social network, and a sense of community.

The Australian Chamber of Commerce and Industry (ACCI) also dispelled myths of hiring people with disabilities by highlighting that ongoing costs of hiring persons with disabilities are actually lower, that employees with disabilities tend to commit to the organization longer, that they help make the workplace culture more inclusive and diverse (ACCI, 2012). However, little is known about the employer's environment in terms of their capacity and capability, or how attitudes and behavior of the staff or line manager play in ensuring sustainability of open employment; and what supports they may need and how service providers can play a role in supporting employers and not just the person with disability.

In a study of attitudes of caregivers of people with high support needs towards employment, Ford, Ninnes and Parmenter, (1995) emphasized the need for greater communication between the service providers and families as crucial to employment outcomes. Hence, there is a pressing need to understand more about the employer and family factors that influence sustainability of a person with disability in OE, after job placement. This is supported by studies from different countries. In Australia, Knox and Parmenter (1993) found that social support both within and beyond the workplace is crucial for persons with intellectual disabilities working in OE. In line with this, Riches and Green (2003) emphasized the importance of persons with disabilities to be physically and socially integrated into the workplace environments in order to be successful in OE. In the United States, Dutta, Gervey, Chan, Chou and Ditchman (2008) also found that there were person factors and vocational rehabilitation variables that influenced employment outcome. These findings appear to support the need to propose multi-level support plans to facilitate sustainable and successful OE.

Therein lies a gap- there has been a lack of translation of these findings into solutions at the different levels according to the conceptual model in Chapter Two- persons with disabilities themselves, families/caregivers, job coaches, co-workers, supervisors/managers, organizational culture and policies as well as macro-level factors such as national policies/schemes and societal attitudes.

Person-level characteristics such as self-awareness, pro-activity, perseverance, goal setting, effective use of social support systems, emotional stability and emotional coping strategies have been shown in literature to be important to successful OE for persons with disabilities. A report by Riches et al., (2016) highlighted that aside from economic factors such as wages, working hours,

job benefits, job duration and career progression, non-economic factors such as inclusion, improved independence and social status, increased satisfaction, self-confidence and well-being, person- centred goals, employment and community participation, skill acquisition and maintenance; career choice and control, creativity and variety, as well as being able to contribute to society were crucial factors to continued participation in OE. However, job coaches do not have a systematic way to screen for these characteristics to determine suitability for a job.

Often people with disabilities are prepared for employment options towards the end of their school-life and job readiness is assessed just before 18 years at best, or when they are being assessed for employment. This occurs in isolation from the family and caregiving context, which is an important consideration at the microsystem level. There is a dearth of studies covering characteristics associated with caregiver support, particularly for persons with intellectual and developmental disabilities.

At the mesosystem-level, there is a lack of understanding what potential employers may need in order to not just recruit but, importantly, retain potential employees with disabilities. This includes characteristics of the specific work setting that an employee with disability works in such as the customized accommodations, and the support he/she gets from the co-workers, supervisors and managers who support him/her directly. Internationally, the World Health Organization, in their report in 2011, highlighted that sufficient workplace accommodation, vocational training, peer training, mentoring and early intervention are important in assimilating people with disabilities into community workplaces. However, a lack of emphasis and provision of these factors appear to hinder a person with disability in terms of sustaining in the job (WHO, 2011).

Additionally, mesosystem-level characteristics of the misfit of person with work environment, misfit of type and extent of employment coaching, lack of specialized job training and individually tailored supervision, lack of a clear health and safety processes, inappropriateness of work schedules, lack of understanding of disability amongst colleagues, as well as the lack of augmentation of customized technology supports to open up possibilities for sustainable customized employment are also barriers to sustainable open employment.

Over and above characteristics in the work setting, broader organizational culture and policies that promote inclusion and person-centred support for persons with disabilities appear to be overlooked in the traditional model of formal job placement and job support. Exosystem characteristics such as an inclusive organizational HR practices and culture are not given enough attention but have been highlighted by different studies as being important to successful OE for persons with disabilities.

Further, the macrosystem factors such as government-backed OE research informing policies and schemes are not given enough focus in terms of how these schemes are utilized in an evidence-informed manner to bring about real improvements in employment outcomes. These factors are critical to support employers in developing and sustaining an inclusive workforce as well as shape societal attitudes to support more persons with disabilities to enter the open labour market. At a macrosystem-level, there is also a need to understand and propose how businesses and employers can be better supported to build their capacity to keep their employees with disabilities employed in the light of economic recession or health pandemics. The COVID-19 global pandemic is bound to have an impact on disability employment, with likelihood of people with disabilities falling out from their

jobs being elevated as businesses and companies feel the strain of a drastic drop in business and impending recession. Although we do not have the hard data of the drop-out numbers, in Singapore, a job support agency claimed that 3 out of 103 of their clients that they support in OE have lost their jobs over the last two months, with a further 72% facing uncertain futures on their jobs when the pandemic situation eases (J. Shen, personal communication, 15 August 2020). Strategically, there is a need to propose an evidence-based systematic framework for employers, policy makers, job support agencies, families and persons with disabilities themselves to take reference from and implement policies, systems, practices and supports that allow disability OE to build sufficient resilience to global issues such as health pandemics and economic recessions.

Eggleton's basic performance measurement framework (cited by Kober et al, 2009) encapsulates the potential importance of looking deeper at person, employer and caregiver factors when exploring characteristics of successful OE for persons with disabilities). Eggleton's framework proposed that aside from person factors such as job satisfaction and QoL, employer factors such as workforce diversity and acceptance of employees with disabilities as well as caregiver factors such as family QoL and stress levels are important outcome measures in disability employment. However, despite the suggestion of the importance of person, employer and caregiver factors, we still do not adequately understand how these factors come together to effect successful OE for persons with disabilities. Although it is acknowledged that a conceptual framework for employment is needed for research and practice, rehabilitation professionals have invested little energy in developing specific theories and models of job placement and support (Lustig, Lam, & Leahy, 1985).

Theoretical approaches which have impacted the rehabilitation field are career development theories (Ginzberg, Ginzburg, Axelrod, & Herma, 1951; Holland, 1959; Roe, 1956; Super, 1953;) and the Minnesota Theory of Work Adjustment (Lofquist & Dawis, 1968). Although career development theories are concerned with career choice processes, and the Minnesota Theory of Work Adjustment is concerned with work satisfaction and satisfactoriness, none of these theories address how to actually achieve successful open employment placement which is based on sustained long-term employment. For example, in Singapore, despite more companies willing to hire people with disabilities, there are still challenges when it comes to job sustainability across different job industries. According to the Society for the Physically Disabled (SPD) in Singapore, small and medium enterprises make up the majority of the companies which offered employment to these people (Hrinasia, 2016). Hence, we need to understand what are the exact enablers and barriers to people with disabilities being offered sustainable employment by bigger companies vis-à-vis smaller ones. This would be crucial to drastically increasing the employment rate of persons with disabilities as bigger companies potentially have more job places available compared to small and medium enterprises.

This points to the lack of a diagnostic assessment tool that is person-centred in its assessment to ascertain fit of support needs-workplace accommodation and consequently predict likelihood of the person sustaining in that particular job. While there are instruments available such as the Becker Work Adjustment Profile-2 (BWAP-2) that assess vocational readiness and competency that inform vocational placements for persons with disabilities, there is no tool which specifically predicts the likelihood of the person sustaining in OE after placement. There is also no tool that identifies risk factors of dropping out and accordingly informing support needs in

line with the areas of high-risk. There is a need for the development and subsequent use of an OE sustainability screening instrument to allow job support officers and allied health professionals supporting the person with disability to, firstly, identify key risk areas of the person with disability dropping out of OE and, consequently, provide additional support structures in these areas so that it gives the person a greater chance of sustaining in his/her job. Further, such a tool could be helpful informing employers the type of accommodation, modifications and support they need to provide to the person with disability in order to increase chances of employment success for that particular person.

Additionally, the existing approaches of disability open employment, have been developed for a particular disability type. For example, the benchwork model, the systematic instruction approach and the transition model targeted moderate to severe intellectual disabilities. Similarly, the IPS model was developed for persons with intellectual and developmental disabilities, but outcomes and fidelity studies have been more for persons with mental health needs. The place-and-train model seems to have more evidence to improve outcomes for people with intellectual disabilities while the train-and-place model is often more applicable to people with physical impairments and those with higher functioning intellectual disabilities. However, there is no one model that employers and job coaches are able to take reference from to support persons with different disability types. There are implications in terms of supporting employers who wish to understand how to provide more sustainable employment to persons with different disability types. Furthermore, this is important in terms of supporting individuals with more than one disability type, where it becomes onerous and to some extent less valid to apply models tailored to specific disability types.

There is also insufficient research that informs us about the duration in which the person with disability should be supported by a job coach on the job, so that the likelihood of success is optimised. However, information obtained during discussions conducted in 2019 with established job support agencies such as NOVA (M. Wren., personal communication, 4 May 2019) and JobSupport (P. Tuckerman, personal communication, 5 May 2019) in Australia, indicated that support from job coaches needs to be ongoing and long term, tailored to individual needs. Comparisons of success rates of job support agencies who provide long term support versus those that provide support only for OE to two years indicated that there is a considerable deficit in the long term success rates for the agencies that only provide support for a limited time period (Westbrook, Nye, Fong, Wan, Cortopassi, & Martin, 2012).

Economically, opportunities and support for sustainable open employment for persons with disabilities implies the underlying assumption that people with disabilities have a right to open employment and that the costs of their participation are small and easily absorbed by the private sector. However, there is a perception that work accommodations are too costly (Domzal, Houtenville, & Sharma, 2008). These beliefs remain persistent despite studies showing that the majority of accommodations cost little or nothing, while having positive outcomes such as enhanced productivity and increased overall organizational well-being (Solovieva, Dowler & Walls, 2011). Hence, it is important to increase awareness and education amongst employers on the economic value of hiring and retaining persons with disabilities as well as the practices and supports to be put in place for each employee with disability at the person-level, microsystem, mesosystem and exosystem levels.

Additionally, as we move into the age of artificial intelligence and machine learning, people with disabilities face a greater challenge in obtaining and sustaining

employment as there are fears that robots are taking over the jobs of people with disabilities, given that many of the jobs predicted to be taken over by robots are often the ones most accessible to disabled people. While this might be true, the reverse is also a much-discussed possibility- where robots and technology can be tapped on to generate new job opportunities for people with disabilities (Wolbring, 2016). Artificial intelligence and technology, depending on how they are utilised and embedded in the workplace, can actively contribute to a better inclusion in the organisation (Wisskirchen et al., 2017). Hence, having a framework that informs job support agencies and employers on the person-centred adoption of technology in work places would be key to improving the impact at the microsystem and mesosystem levels of the conceptual model.

A key gap in Singapore's disability services is also the absence of a framework that is based on evidence-based best practices and sound disability concepts to guide persons with disabilities, service providers, employers and caregivers in systematically placing and supporting a person with disability on the job so that chances of sustaining on the job is maximized. This lack of such a framework aligned to the system-level conceptual model also means that, at a macrosystem-level, funding support and resources by the Singapore government are currently not channeled to specific areas according to the person's areas of support needs. Additionally, at the mesosystem and exosystem levels, there is a lack of implementation of systematic employment outcome measures to effectively measure the impact of employment on best-practice standards such as inclusion and person-centredness.

At the exosystem level, there is also a lack of systematic assessment of employers and service providers in Singapore on their performance in supporting a

person with disability. This is unlike countries like Australia which has the Quality

Strategy for Disability Employment Services (DES) and the DES performance

framework rolled out by the Australian government from 2002 (Matthews, Buys,

Crocker & Degeneffe, 2007). As mentioned, there is an absence of a holistic

framework to systematically guide employers and job coaches on how to provide

personalised support and accommodations with view to job sustainability. This would

include the absence of a structured and systematic assessment process that informs

person-centred support and accommodation from the onset as opposed just relying

on 'fire-fighting' and addressing the challenges that the person faces once he or she

is already on the job. While there are non-subjective methods of job finding and job

matching currently, there still exists a need for a more robust tool to support this

process.

It is essential to take a two-pronged approach to employer engagement

strategy in improving sustainable and successful OE: a) look at both how to increase

in quality and extent of workplace support at a mesosystem level as well as b) how to

overcome the barriers to raising the demand for workers with disabilities in the

mainstream labour force at a macrosystem level. In line with this, Gottlieb, Myhill and

Blanck (2010) explain that the barriers that are inherent in the life circumstances of

people with disabilities such as access to support structures, must be examined,

while also positing that on the labour demand side, there are employers' attitudinal

barriers and the perceived costs of workplace accommodations that need to be

addressed, Gottlieb et al., (2010) explained that both of these may positively change

potential employers' reluctance to hire people with disabilities.

The challenges that Singapore faces with regards to disability employment

mirrors that of international situation. There is a lack of systematic understanding of

what it takes for persons with disabilities to sustain in OE post-placement. Further, a lack of a support model to guide job coaches, service providers, persons with disabilities, their caregivers and employers on effective job matching, placement and support for sustainable OE. Additionally, the lack of non-subjective assessments and the lack of effective outcome measures to measure outcomes and impact of OE upon placement adds to the challenge in OE sustainability. Given that the degree of fit between the support needs of the person and what is provided in the job is crucial to successful and sustainable OE, the development of a diagnostic assessment to systematically inform all stakeholders- persons with disabilities, caregivers, employers and job coaches, on the likelihood of sustainability and areas of support needs based on the fit between the person and the job is pertinent at the person, microsystem, mesosystem and exosystem levels. In order to support the successful and sustainable inclusion of persons with disabilities in open employment, the tool should also inform the necessary support structures that need to be put in place at the different systemic levels when supporting a person with disabilities in a job. This is especially important as studies have shown that when natural supports in the workplace are missing and sustainability after placement becomes an issue (Williams, Fossey, Corbière, Paluch, & Harvey, 2016), employment can actually result in poor health and self-esteem (Broom, D'Souza, Strazdins, Butterworth, Parslow, & Rodgers, 2006). Hence, while good practice exists in providing job support, the proposed tool might potentially help identify where help may be needed early on in a pre-emptive manner, rather than reactive.

Aims of Study

Although we understand the barriers to sustained and successful OE, it is self-defeating if they lead potential job seekers with disabilities to adopt a posture of resignation and set current system performance as the standard of adequacy. A more interesting course opens when the understanding of each of these issues that likely limit access to employment become an impetus for knowledge creation and innovative action. With reference to the problem statements, the aims of the study are two-fold:

The primary aim is to develop an evidence-based framework for sustainable and successful OE for persons with disabilities that is applicable to a wide range of industries and one which employers, job coaches, families and persons with disabilities themselves can refer to when developing policies and implementing practices/support systems in the work place to facilitate inclusive hiring and retention. The study aims to mainly focus on intellectual disabilities with view to extending to other disability sub-types subsequently through follow-up studies. Such a framework allows for translation of theoretical best practices to development of action plans at different systemic levels- person, microsystem, mesosystem, exosystem, macrosystem that can impact the employment outcomes and consequent QoL of the person in a multi-pronged approach.

The secondary aim is, as part of the framework, to explore the feasibility of developing a diagnostic tool for job coaches and employers to assess the likelihood of sustainability for a specific person with disability in a specific job so as to inform the areas in which supports need to be ramped up for the person to overcome barriers for sustainable OE.

It is clear that the multi-faceted issues that persons with disabilities face in maintaining employment in the open labour market can be conceptualized at the person, microsystem, mesosystem, exosystem, macrosystem levels and need to be addressed in a holistic and systematic manner to optimize the chances of sustainable and successful OE.

The gaps highlighted inform the need for the development of an evidence-based framework for sustainable and successful OE for persons with disabilities across different industries which allows persons with disabilities a full range of opportunities to participate in the economy and society at large. With reference to the conceptual model outlined in chapter two, the creation of these opportunities are important to improve independence and overall QoL of persons with disabilities. This, in turn, is pertinent to facilitating inclusion in society. As Mont, (2004) pointed out, removing barriers to participation that plague persons with disabilities enhances their QoL in general as well as increases productivity, lowers unemployment, and reduces reliance on government transfers. Being employed is one opportunity to reduce the social isolation that people with disabilities run the risk of falling victim to (WHO, 2011). Further, due to the expected decline of the working-age population globally, people with disabilities are now more and more recognized as a valuable resource in the workforce in both the private and public sectors (Vornholt et al., 2018).

The pulling together of the important factors for sustainable OE at the person, microsystem, mesosystem, exosystem and macrosystem levels in the form of an evidence-based framework can consequently inform action from different groups-policy makers, employers, job coaches, families/caregivers and persons with disabilities themselves. Perhaps most importantly, the study's coverage of microsystem-level factors aims to shed light on the role of family/caregiver related

characteristics that contribute to sustainable OE for persons with disabilities, an area which is under-studied.

The goal is that the framework would also be a point of reference for policy makers when developing or revising policies related to employment- particularly, disability employment. Currently, while there are mainstream models and frameworks to guide government policy makers in making decisions around related areas such as health, there is no such model based on best practices for the sphere of employment for persons with disabilities.

Collectively, this framework could enable change in the tangible number of successful OE in the longer term but also one that shapes societal attitudes to be 'ready' for a more inclusive workforce. Broadly, the framework may impact the lives of adults with disabilities by facilitating employment related processes that give them a better QoL, independence and inclusion in society. This is supported by literature which posits that a longer sustainability in jobs lead to better QoL for not just people with disabilities but also people with mental and physical health issues (Krause, Dasinger, Deegan, Rudolph, & Brand 2001; Bouwmans, de Sonneville, Mulder & Hakkaart-van Roijen, 2015; Amado, Stancliffe, McCarron & McCallion, 2013). Work has been found to be a significant factor in physical and mental health (Bezyak et al., 2018).

Additionally, exploring the feasibility of the development of a diagnostic tool to assess the sustainability of a person with disability in a particular job in OE will add value to the role of job coaches when they match, place and support persons with disabilities in a job. Although job coaches currently use non-subjective means of assessment through vocational assessment tools, decision-making on job suitability

and sustainability is still largely subjective lacking systematic assessment process based on theory. The tool will further enable job coaches to identify the job that best suits the support needs of the person with disability and increase the chances of him/her sustaining in it.

Further, upon matching, job coaches can then sit down with the prospective employer to explain which areas the tool has identified that the person needs the most support in the workplace. Currently, there is considerable 'fire-fighting' where a chance is taken and then employers and job coaches try their best of make the most of the situation to support the person. Any issues that arise are then discussed on a rather ad-hoc basis and sometimes, this can result in the person with disability falling out of the job if the support needs and support provided do not align. The tool could address this issue by informing the employer from the very onset of placement the specific type and extent of workplace accommodation and support he/she needs to provide so that the employment for the person with disability is sustainable and successful. In this way, support structures in the workplace can be put in place from the beginning of placement, supervisors/managers can be educated on the specific support needs of the person as well as a holistic support plan can be put in place that the person, employer, job coach and caregiver are all committed to implementing.

Additionally, we do know from the conceptual model in Chapter two, that chronosystem-level factors can also impact the outcomes for a person with disability. Persons with disabilities, just like any person without it, have changing needs during their life course. For example, significant life events, health conditions as well as other psychosocial factors can have an impact in the productivity and quality of the person's work. If this is not addressed promptly, the person is at risk of falling out of employment. With this tool, at any point in the course of the person's employment in

that job, the job coach and employer can assess if the support needs of the person have changed and proactively make changes to the support plan in the workplace. This would reduce the risk of fall out from the job.

The tool also could have a crucial role in helping persons and their caregivers make informed and person-centred decisions as to which job the person decides is best for him/her. Currently, when there are multiple options for a possible job for a particular person to be placed in, there is sometimes disputes among job coaches, persons and their caregivers as to which job to go for. Again, persons and caregivers take a 'chance' on a job with minimal evidence that the person can sustain in the job. The tool provides a basis for informed and person-centred decision-making.

Importantly, the tool may also facilitate self-determination and autonomy for the person with disability in that he/she would potentially be able to make an informed choice on the job. The importance of self-determination and autonomy for QoL for persons with disabilities is well researched (Nota, Ferrari, Soresi & Wehmeyer, 2001; Wehmeyer & Bolding, 2001).

Chapter Six: Method

Introduction

The previous chapter outlined and justified the aims of the study, which are to develop a holistic framework of factors of successful OE that is applicable to a variety of job industries and disability types as well as to explore the feasibility of the development of a diagnostic tool to assess OE sustainability.

In order to identify and make sense of what these factors for success are and how they play a role in helping persons with disabilities sustain in their jobs, there needs to be both a deep understanding of both the subjective experiences of persons with disabilities in OE as well as the level of generalizability to job industries and disability type.

Methodology

The primary aim of the study is to develop a framework for sustainable and successful open employment for persons with disabilities through a three-step process: a) identification and understanding of the characteristics of successful OE for persons with disabilities in different job industries; b) validation of the characteristics with actual employment outcomes; and c) proposal of a framework for sustainable and successful OE. It is important to identify a suitable and robust methodological approach to enable this process (see Figure 2)

Figure 2

Three step process for developing a model for successful OE

Identification and understandingof characteristics of successful OE	→	Validation of characteristics with actual employment outcomes	→	Development of a framework for sustainable and successful OE
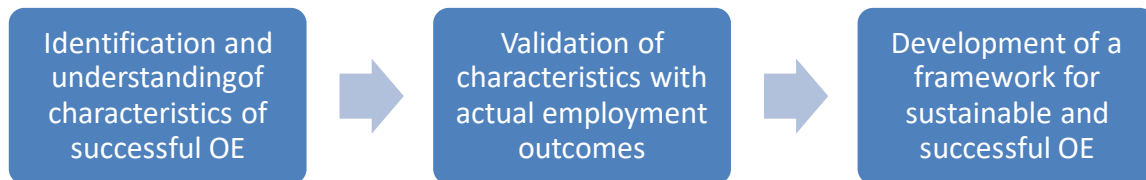
The secondary aim of the study is to explore the feasibility of the development of a diagnostic tool to assess sustainability of employment when placing a person with disability of a particular job. The methodology of the study needs to also support this aim.

Approaches considered for the study

In the light of the aims of this study, various qualitative and quantitative approaches to the methodology were considered.

When exploring an area that is limited in existing research such as sustainability of disability employment, qualitative research is critical as it allows for deep, context specific data to be collected. It allows analysis of data informed by constructivist grounded theory where there is no preconceived idea or hypothesis to support or disprove. Instead, it focuses on deep understanding the phenomenon as experienced by the participants in an inductive manner (Mills, Bonner & Francis, 2006; Strauss & Corbin, 1990). Because qualitative methodologies are inductive, oriented toward discovery and are less concerned with generalizability, they will allow for a deeper understanding of the phenomenon of sustainable employment for persons with disabilities (Ulin, Robinson & Tolley, 2004).

Understanding of the characteristics of successful OE through first-hand experience, truthful reporting and quotations of actual conversation from insiders' perspectives (Merriam, 1998) leads to the importance of employing data gathering methods that are sensitive to context (Neuman, 2003), and which enable rich and detailed, or thick description of successful OE by encouraging participants to speak freely about their unique experiences of employment in the open labour market.

Qualitative research design assumes that knowledge is not independent of the knower, but socially constructed and that reality is neither static nor fixed (Yilmaz, 2013). From the review of the literature in earlier chapters, it was clear that persons with disabilities themselves, their families and their employers all have characteristics that contribute to the likelihood of a person maintaining OE. In line with this, there are multiple realities that persons with disabilities, their families and their employers construct on the basis of their world views or value systems. Consequently, there are multiple interpretations or perspectives on sustainable and successful OE. So, understanding this phenomenon under investigation from the perspectives of these different groups of participants involved is essential.

Determining the type of qualitative approach to help achieve this is critical. Phenomenology, discourse analysis and grounded theory are three common approaches. The goal in phenomenology is to study how people make meaning of their lived experience; discourse analysis examines how language is used to accomplish personal, social, and political projects; and grounded theory develops explanatory theories of basic social processes studied in context (Glaser & Strauss, 1967; Starks & Trinidad, 2007). Comparing the three approaches, discourse analysis was ruled out as the intent of the study was not to investigate the role of language in what sustainable OE means for the different groups of respondents. While understanding the meaning

of what successful OE means for different groups of respondents is important, it is necessary, to go a step further to explore how sustainable OE is achieved in the context of the person, family and employer characteristics, as well as understanding the patterns and relationships among them (Strauss & Corbin, 1998). This approach is important for the development of a framework for sustainable and successful OE. As such, grounded theory would appear to be better placed for this study. Principles of grounded theory have supported the development of a rigorous and pragmatic qualitative interviewing approach, tailored to the needs of people with ID.

It is clear also, that the choice of grounded theory is driven by the philosophical assumptions which frame the conceptualisation of the study to develop a framework to explain the person, family and employer characteristics of sustainable OE. Hence, it is necessary to find out more about the characteristics of successful OE from the subjective perspectives of person, caregiver and employer- which fits with the epistemology of qualitative research. From an ontological perspective, given that there is a lack of prior studies which have conclusively established the characteristics of sustainable OE for persons with disabilities, it cannot be accepted that there is a set of characteristics out there which just need to be discovered (Tuli, 2010). Instead, we need to rely on an interpretive research paradigm and view that set of characteristics and what they mean to individuals before trying to find an explanation of how they contribute to sustainable OE. In line with the grounded theory approach, data collection methods such as semi-structured interviews would capture the depth of the different groups of respondents' experiences in their own words (Kroll, Neri & Miller, 2005). In terms of sampling, grounded theory relies on theoretical sampling, which in this study involves recruiting participants with differing experiences of sustainable OE.

However, such subjective qualitative samples are unrepresentative, and as such, conclusive interpretations are difficult in terms of what constitutes sustainable and successful OE (Morse, 1999; Queirós, Faria & Almeida, 2017). Hence, this approach alone does not allow the provision of data-driven evidence for the proposed model for sustainable OE. A qualifier is that, while the framework that is proposed in this study will be based on exploratory data analysis, it is not evidence-based per se and will need to be tested subsequently to be considered truly evidence-based.

Quantitative approaches, on the other hand, are positivist in nature and emphasise the explanation of the phenomenon using data measured by tools such as surveys (Tuli, 2010). The realist/objectivist ontology and empiricist epistemology contained in the positivist paradigm requires a research methodology that is objective or detached, where the emphasis is on measuring variables and testing hypotheses that are linked to general causal explanations (Marczyk, DeMatteo and Festinger ,2005; Sarantakos, 2005;). In doing so, they allow for generalizable conclusions that apply to a particular population as a whole through sample randomisation, experimental control and inferential statistics (Johnson, 1997). In this study, it is necessary to validate the subjective perspectives of these groups with the employment outcomes of people with disabilities in OE – the study aims to develop a framework which may guide the development of instruments to achieve this validation and predict employment outcomes.

To do this, it is necessary to assess numerical differences in person, caregiver and employer factors across individuals and validate it with their actual employment outcomes. The use of questionnaires using Likert scales facilitates this. Likert scales assumes that the strength/intensity of an attitude is linear, i.e. on a continuum from

strongly agree to strongly disagree, and makes the assumption that attitudes can be measured quantifiably.

Furthermore, quantitative approaches are overly simplistic, decontextualised, reductionist in terms of their generalisations, and fail to capture the meanings that actors attach to their lives and circumstances (Queirós et al., 2017). It would be meaningless from a practice point of view to know which characteristics are predictive of employment outcomes without understanding each person, caregiver and employer characteristic deeply. Consequently, using purely a quantitative approach would be insufficient given that there is a dearth of prior studies which have delved deep into the experiences of persons with disabilities, caregivers, employers and job coaches at the same time (Kroll et al., 2005). Hence, any statistically significant conclusions made would have a lack of solid conceptual basis.

It is also important to triangulate data from three different sources- persons with disability, caregivers, employers. This data triangulation is crucial for the purpose of the study which aims to develop a holistic framework for sustainable and successful OE across disability types and jobs. As such, it would be critical to adopt a methodology that allows triangulation of multi-source data.

Mixed method approach

The mixed-method is a common approach in healthcare and social services research (O'Cathain, Murphy & Nicholl, 2007). Researchers have used mixed method design when attempting to ensure that their findings do not depend primarily on one particular kind of data collected. Hence, they establish a process in which qualitative data collection allows a deep understanding of a particular phenomenon from a constructivist approach, which then informs the nature and form of the subsequent quantitative data collection required to provide a level of generalizability to the findings.

Sieber (1973) provided a list of reasons to combine quantitative and qualitative research. He outlined how such a combination can be effective at the research design, data collection, and data analysis stages of the research process. For example, at the research design stage, quantitative data can assist the qualitative component by identifying representative sample members, as well as outlying cases. At the data collection stage, qualitative data can help in facilitating the data collection process and quantitative data can play a role in providing baseline information and help to avoid "elite bias" (talking only to selected individuals). During the data analysis stage, qualitative data can shed new light on subjective experience of different participant groups (person, caregiver and employer) while quantitative data can facilitate the assessment of generalizability of the findings. Additionally, during the data analysis stage, qualitative data can play an important role by interpreting, clarifying, describing, and validating quantitative results, as well as facilitate grounding and modifying. Rossman and Wilson (1985) identified three reasons for combining quantitative and qualitative research. First, combinations are used to enable confirmation or corroboration of each other through triangulation. Second, combinations are used to enable or to develop analysis in order to provide richer data. Third, combinations are

used to initiate new modes of thinking by attending to paradoxes that emerge from the two data sources.

In order to have an in-depth understand the critical factors of successful OE from the perspectives of the person, caregiver and employer, it is important for us to resolve specific questions that emerge in the process of qualitative semi-structured interviews with additional data collection for surveys. Given that the study aimed to validate predictability of employment outcomes by person, caregiver and employer characteristics, it reiterates the importance of a two-step process of, first, identifying and understanding the depth of these characteristics through qualitative interviews before validating them through surveys and outcomes of individuals' employment. Hence, mixed method allows a qualitative approach to thoroughly investigate the experiences of persons with disabilities, their caregivers and employers as well as the collection of quantitative data to validate the same phenomenon. This allows for data triangulation and ensures it will minimise the limitations brought about from use of only qualitative or quantitative approaches (Kadushin, Hecht, Sasson & Saxe, 2008). Furthermore, the quantitative component of a study helps with instrument development (Sieber, 1973). This was also a secondary aim of the study- to propose a diagnostic instrument for sustainable OE. In view of this, a mixed method approach was deemed most suitable to achieve the aims of this study. Figure 3 illustrates how the mixed method approach aligns with the aims of the study.

Procedures

Ethics approval was obtained from the University of Sydney (as per approval letter dated 30th November 2018). The approval letter is attached in appendix one.

The mixed methods study was conducted in three phases in the following sequence as outlined in figure 3:

Figure 3

Mixed method approach to model development
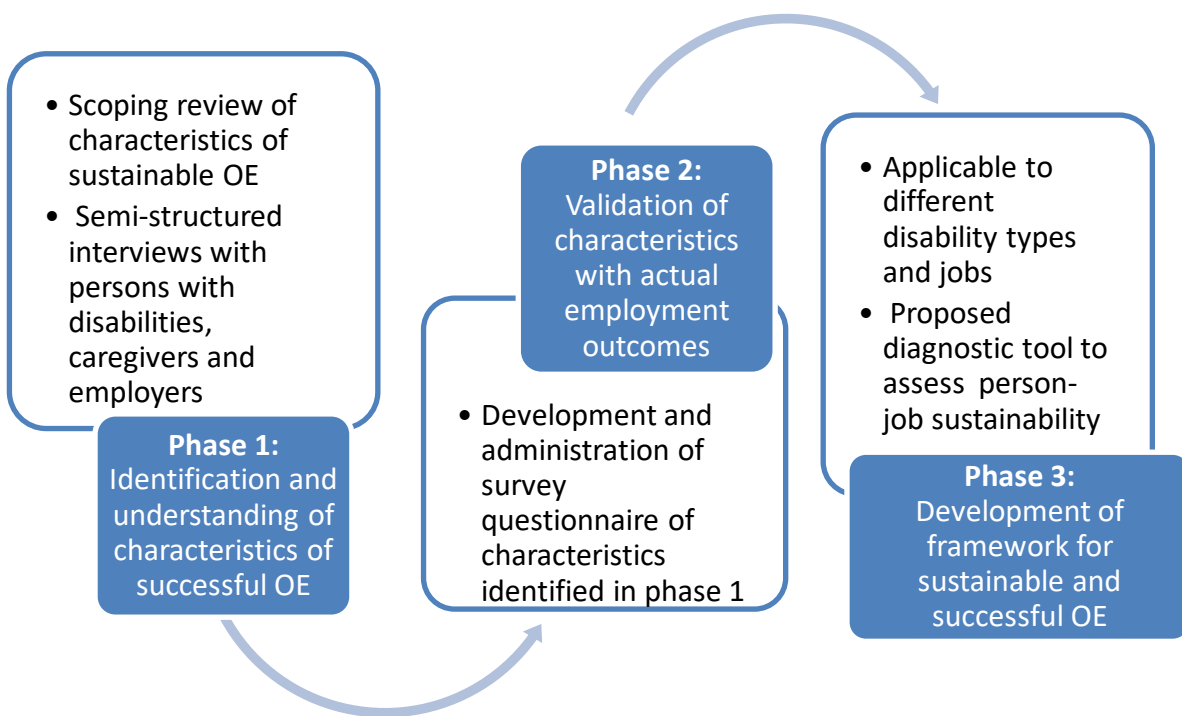
Phase 1: A scoping review of the disability employment landscape, existing models of placement and support as well as best practice approaches was conducted. The purpose of this was to use literature to guide the formulation of the questions in the semi-structured interviews in Phase 2.

Phase 2: Qualitative semi-structured interviews with persons with disabilities in OE, caregivers and employers. An advisory panel was formed comprising: a person with disability, caregiver, job coach and employer would check and determine if the descriptions and themes accurately reflected their viewpoints. In addition, the principal supervisor of the thesis reviewed the themes and sub-themes to see if they accurately

reflected the participant views from the data collected. Each member of the advisory group was invited with a formal letter of invitation, citing the outline of their role in the advisory group as well as the background and implications of the study.

Phase 3: Quantitative survey questionnaires which were filled out by job coaches supporting persons with disabilities in OE.

Resources

NVivo 11 and SPSS 24 statistical analysis software were used for the qualitative and quantitative data analyses respectively.

Interviews

Recruitment of participants for interviews.

The interviews involved 20 participants from three groups- persons with disabilities, caregivers and employers.

Participation in the study was voluntary and informed consent was obtained for all participants. Persons with disabilities, their caregivers and employers were recruited through two different job support agencies which were supporting them. The job support agencies were requested to shortlist participants who met the inclusion criteria and obtain their verbal consent to be contacted for the study.

Persons with disabilities. Eight persons with disabilities who met the inclusion criteria of being at least 18 years of age and in open employment for at least eight months were cited by the job support agency as willing to participate and were recruited in the study. The 'eight months' cut-off was

chosen because local data showed that the biggest drop-out from OE for persons with disabilities is within the first six months. 'Disability' was defined as physical, intellectual, development or multiple disabilities. Seven out of eight persons had an intellectual and/or developmental disability while the remaining one person had a physical disability. Although WHO reported that the prevalence rate of physical disabilities is higher than intellectual disabilities internationally (WHO, 2011), in Singapore, there is a greater emphasis currently upon people with ID in OE as the number of persons with ID and Autism Spectrum Disorder being referred to disability job support agencies for job placements is increasing at a faster rate compared with other disabilities. Interviews were conducted in a place they selected as being most comfortable for them. This was either their worksites, at a meeting room in the job support agency or at their homes.

Caregivers. Six caregivers of persons with disability who were in open employment for at least eight months and cited by the job support agency as willing to participate in the study were subsequently contacted and recruited after informed consent was given. Interviews were conducted either at a meeting room in the job support agency or at their homes, depending on their convenience.

Employers. Six line-managers/supervisors working with the person with disability in OE for at least eight months and cited by the job support agencies as willing to participate in the study were subsequently contacted, and recruited after informed consent was given. The interviews were conducted at a meeting room at their respective worksites, due to convenience and feasibility.

Interview data collection

For recruitment of persons with intellectual and developmental disabilities already in open employment as well as their caregivers and employers, two different job agencies in Singapore were sought- one which places and supports people with intellectual and developmental disabilities in OE as well as the other which supports people with physical disabilities in OE. The job agencies shortlisted the persons, caregivers and employers who met the inclusion criteria as well as obtained verbal consent from them to participate in this study. The agencies also assisted to arrange for the interview sessions, where written informed consent was obtained.

A purposive sampling strategy was used in this study to obtain an accurate enough representation of persons with different types of disabilities based on the number of referrals made to job placement agencies over the last 5 years in Singapore. A semi-structured interview form was used in the study. The questions in the form comprised both broad open-ended questions that aimed to elicit honest, wide-ranging responses as well as more direct questions that were derived from existing literature. There were three versions of the form, one for each group of participants.

Current literature surrounding employment was reviewed before narrowing down the investigation of the landscape of employment of persons with disabilities. This included persons with physical, intellectual and developmental disabilities. Both international and Singapore landscapes were studied. Existing placement and support models of disability employment were also reviewed along with current best practice approaches. From the literature, various person, caregiver and employer characteristics were found to influence success of OE for persons with disabilities.

Semi-structured interviews were conducted to explore characteristics of OE sustainability from the perspectives of three groups of people- persons with disabilities, caregivers of persons with disabilities and employers of persons with disabilities. Based on the characteristics identified in the current literature, three separate semi-structured interview forms with open-ended questions were developed for the three groups of participants- client, family and employer. Participants were invited to the study on a voluntary basis and informed consent was first obtained over the phone. Interviews were arranged and conducted in private at a convenient time for participants either in a meeting rooms either within the organisation or the worksite. The interviews were audio recorded and lasted between 35 to 45 minutes. The interviews were conducted over a period of 10 weeks.

The interview process

Once participants who met the inclusion criteria were shortlisted by the job support agencies, the agencies also assisted with contacting and obtaining verbal consent from them. Interviews were then arranged by the job support agencies.

At the start of each interview, the participants were thanked for their attendance. The participant information sheet was explained to the participant, including the background and rationale of the study. For the persons with disability, this was done in simple English in a manner that was easy to understand and their understanding was verified at the end. A copy of the sheet was given to the participant for his/her own reference. Written consent was then obtained from the participant. Following this, participants' permission was obtained for audio recording of the interview. All agreed to be audio recorded.

Persons with ID were provided accommodations during the interview process to respond to the interview questions. This included reading and understanding the participant information sheet and informed consent. The interview was conducted in a semi-structured format. It started with demographic questions. Then, broad questions were asked on simpler topics before moving to those that are more complex. Questions were grouped together according to domain/topic. Within domains, questions started with the most concrete issues before moving to the more abstract. Participants were allowed to speak without interruption and probing questions were asked at opportune junctures of the interview. Conversation was kept focused on the topic and the participant was re-directed each time they went off-tangent.

At the end of the interview, the participant was thanked for their participation and asked if they had any further questions, which were addressed as necessary. The audio recording was stopped.

Each interview recording was transcribed within a week of when it was conducted. All four members of the advisory panel tested the transcribed material. The transcripts were then loaded onto the NVivo software for analyses.

Analysis of interview data

The data collected from the audio recorded interviews were then transcribed verbatim. An open coding process was used. Coding was completed by reading and rereading the transcripts. Each transcript was coded line by line for significant content. The primary researcher did the first round of coding and the analysis process was then peer-reviewed by a secondary researcher. Differences were resolved via discussion. The code list was expanded until all the transcripts were covered. Data saturation was reached when no new themes were revealed during the interview. Common themes

and sub-themes within each group were identified. Finally, common themes and sub-themes across all three groups (persons, caregiver and employer) were considered. The themes and sub-themes were then interpreted to describe person, caregiver and employer characteristics that are pertinent to a person with disability sustaining OE.

The survey

Recruitment of participants for the survey

Participants in the survey were job coaches who supported persons with disabilities in open employment. Job coaches were recruited from two disability job support agencies in Singapore which provided job support to persons with physical, intellectual and/or developmental disabilities in Singapore. For the recruitment of job coaches, the same two job support agencies in Singapore were approached.

Consent was obtained through e-mail from both job support agencies. Following which, job coaches were invited to participate voluntarily. Written informed consent was obtained for all participants.

Survey data collection

A survey questionnaire was used for this phase of the study, consisting of items informed by the themes and sub-themes resulting from thematic analyses of the transcripts of the semi-structured interviews conducted with persons, caregivers and employers in the interview phase. The questionnaire also consisted of items targeting demographic information of the person with disability such as type of job, job industry, length of time in the job and type of disability. Demographic information completed by the job coach for each employee included job experience, type of training received and

length of time supporting the person. All job coaches filled in the same questionnaire for each person they are still supporting in OE for the last 8 months as well as persons they had supported but dropped out of OE before 8 months.

The development of the survey questionnaire for job coaches

One or two questions were derived from each theme and sub-theme in the thematic analyses of the transcripts of the semi-structured interviews. These questions were worded in a concise and simple manner. The list of items was then sent to the advisory group to validate. Upon validation, the list of items was revised and finalised according to the feedback from the advisory group. A questionnaire of four-point likert-style items based on the themes was developed and administered to job coaches who supported persons with disabilities in OE. Aside from content-related items informed from the thematic analyses of the interviews, the questionnaire also consisted of items targeting demographic information about the person with disability such as type of job, job industry, length of time in OE and type of disability.

Reliability checks were done to ensure accuracy of the job coaches' knowledge of the persons they were reporting on. The reliability checks were done in the following manner- A random sample of five persons with disabilities who met the inclusion criteria were selected. The job coach who supported these persons filled out the survey questionnaires based on their knowledge. These five persons, along with their caregivers and employers, were also interviewed separately by another rater who then rated the survey questionnaires as well. Inter-rater reliability with the job coaches and the independent rater was then established. Once this was done,

the survey was deemed ready to be administered by the job coaches to the rest of the persons they supported who met the inclusion criteria.

Analysis of survey data

Descriptive statistics were obtained from the data collected from the survey questionnaires from the job coaches. Successful and sustainable OE was classified as those who have been in the job for at least eight months while unsuccessful and unsustainable OE was classified as those who had fallen out from their jobs in their first eight months. Eight months was chosen as the cut-off as local data showed that most persons with disabilities fall-out from their jobs within six months. Following which, principal axis factor analyses were used to identify the least number of factors which can account for the common variance as well as understand the relationship among variables by understanding the constructs that underlie them.

The matrix of loadings was rotated to obtain orthogonal (independent) factors (Varimax rotation). The prime goal of the factor analysis was to identify simple factors (items loadings >0.30 on only one factor) that are interpretable, assuming that items are factorable, as indicated by the Kaiser-Meyer-Olkin measure of sampling adequacy tests and Bartlett's test of sphericity tests. Once a stable factor structure was established, internal consistencies were established for each of the factors as well as the entire questionnaire.

Following this, comparison of means analyses (independent sample t tests) were conducted to compare the means between the group who were 'Successful' (person has been in the job for at least 8 months) and 'Unsuccessful' (person has fallen out of the job in the last 8 months). The research hypothesis was that there will be significant differences in the scores between both groups.

Then, binary logistic regression was done to explore if each factor, as well as the entire questionnaire, predicted the outcome of the employment- 'Successful' (person has been in the job for at least 8 months) or 'Unsuccessful' (person has fallen out of the job in the last 8 months).

ROC analyses were then carried out to determine a cut-off score for sustainable and successful OE. ROC curves are frequently used to show in a graphical way the connection/trade-off between clinical sensitivity and specificity for every possible cut-off for a test.

Job coaches were required to fill in a survey questionnaire for each of the persons they have supported in OE within the last two years who have: a) sustained in their jobs for at least eight months, as well as b) those who have dropped out before eight months.

Summary

The mixed method approach was applied for the study. Triangulation of data from interviews and surveys was justified as key for achieving the aims of the study- development of a framework for sustainable and successful OE as well as the exploration of the feasibility of developing a diagnostic tool to assess OE sustaimability. Interviews were conducted with employees with disabilities, their caregivers and their employers to explore the depth of experiences from each group. Surveys were conducted with job coaches who supported both persons with disabilities still maintaining employment as well as those who had fallen out of their jobs. Thematic analyses and factor analysis were used to analyse the interview and survey data respectively. Key sustainability areas and the specific factors that fell in each area were obtained. Independent t-tests were used to compare scores of those

who were successfully sustaining employment and those who had fallen out. Binary logistic regression analyses were used to predict employment outcome and ROC analyses were used to explore possible cut-off score for predicting successful open employment.

Chapter Seven: Results

Introduction

In addition to descriptive statistics for both the interview and survey phases of the study, results of the thematic analysis for the interview phase as well as results of factor analysis, comparison of means analyses, binary logistic regression analyses and ROC analysis for the survey phase are reported below.

Descriptive statistics of interview phase

An overview of participant demographics for the interview phase of the study is shown in Tables 1, 2 and 3.

Table 1

Demographic information of persons with disability

Participant	Gender	Age	Number of months in OE	Diagnosis
Person P1	Male	25	60	Intellectual Disability
Person P2	Male	24	12	Intellectual Disability
Person P3	Male	23	36	Down Syndrome and Intellectual Disability
Person P4	Female	42	11	Intellectual Disability
Person P5	Male	24	60	Intellectual Disability
Person P6	Male	20	28	Down Syndrome and Intellectual Disability
Person P7	Male	36	25	Physical Disability
Person P8	Female	23	36	Down Syndrome and Intellectual Disability

Six of the persons with disabilities who participated in the interviews were males and two were females. Seven participants had an intellectual disability and one participant had a physical disability. The average age of persons with disabilities who participated in the interviews was 27.1 years. The average length of time they had been maintaining employment was 33.5 months.

Table 2

Demographic information of caregivers

Participant	Gender	Disability of person with disability associated with caregiver	Relationship to person
Caregiver C1	Female	Intellectual Disability	Aunt (Mother's sister)
Caregiver C2	Female	Intellectual Disability	Mother
Caregiver C3	Female	Intellectual Disability	Mother
Caregiver C4	Female	Intellectual Disability	Mother
Caregiver C5	Female	Physical Disability	Mother
Caregiver C6	Female	Intellectual Disability	Mother

All of the six caregivers of persons with disabilities who participated in the interviews were females. All of them were primary caregivers. Five of them were biological mothers and one was a maternal aunt. Five of them were caregivers of persons with intellectual disabilities while one of them was a caregiver of person with physical disability.

Table 3

Demographic information of employers

Participant	Gender	Relationship to person	Number of employees with disabilities	Industry type
Employer E1	Male	Manager	11 (8- intellectual disability, 1- Autism, 1- sensory disabilities, 1- physical disability)	Hotel
Employer E2	Male	Manager	3 (2- intellectual disability, 1- Autism)	F&B (fast-food)
Employer E3	Female	Manager	4 (3- intellectual disability, 1- physical disability)	Retail
Employer E4	Male	Director	8 (7- intellectual disability, 1- Autism)	Retail
Employer E5	Male	Manager	4 (3- intellectual disability, 1- sensory disability)	Retail
Employer E6	Male	Manager	1 (intellectual disability)	Administrative Services

Five of the six employers of persons with disabilities who participated in the interviews were males while one was female. Five of them were in the role of 'Manager' while one of them was a 'Director' of the organization. In total, they were supporting 31 employees with disabilities- 24 with intellectual disabilities, three with Autism, two with sensory disabilities and two with physical disabilities. The average number of employees with disabilities each of them were supporting was five. Three of the

employers were from the retail industry. One each was from the 'hotel' industry, the 'fast-food' industry and from 'administrative services'.

Interview data analysis:

Common themes and sub-themes across all three groups (persons, caregiver and employer) were identified and sub-themes were collapsed into four themes using thematic analysis. The themes and sub-themes were then interpreted to describe person, caregiver and employer characteristics that are pertinent to a person with disability sustaining in OE. Appendix two provides an example of how a transcript was coded and how they supported the different themes and sub-themes. Table 4 gives an overview of the themes and sub-themes that were present in the interviews.

Table 4

Overview of themes and sub-themes from thematic analysis of interview data

Themes	Sub-themes
1. Personal Characteristics	Fit between person's interest and job
	Fit between support needs of person and support provided on the job
	Personal attributes of person with disability
	Person's own motivation to succeed on the job
2. Workplace-Characteristics	Clear career progression pathways
	Extent of inclusiveness in workplace
	Extent of personalised work accommodation
	Continual training and evaluation
	Organisational policies supporting person with disability
	Quality of communication with person with disability in workplace
	Work tasks
3. Employer/Supervisor-Characteristics	Employer's sense of social responsibility
	Role of supervisor/manager in supporting person with disability
4. Caregiver Characteristics	Active caregiver support
	Caregiver belief that child can succeed in the job
	Caregiver belief that employer is committed to supporting child on the job
	Caregiver attitude towards work tasks and work safety
	Caregiver attitude towards workplace inclusiveness, autonomy and choice
	Caregiver perceived competency in supporting person on the job
	Caregiver perception on quality of relationship with child

Theme 1: Personal Characteristics

All the transcripts from the three groups of participants had comments that were coded

in support of this theme on the personal characteristics of the person with disability

that are key to sustainability in OE. There were a total of 315 comments from all the person, employer and caregiver transcripts that supported this theme.

Fit between person's interest and job. Persons with disabilities who last longer in their jobs tended to have a job scope that is aligned to their interests. This sub-theme was extracted from the transcripts of all eight persons, all six caregivers and four out of the six employers. There was a total of 57 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, P1 said,

"I like everything about my job"

(Person P1)

Likewise P2 said,

"I like this job because they speak well of my company and it can protect farmers from the haze "

(Person P2)

Caregiver C3 mentioned,

"Everyday he would come home and enthusiastically tell us the work he did today. I can tell he really enjoys his work and spending time with his colleagues. He prefers this job compared to his previous one and I think he wants to continue working here for a long time."

(Caregiver C3)

Employer E2 said,

"We can tell he really enjoys the work he does here. He comes in a good mood every day and enjoys a very good relationship with his colleagues. He is also very passionate about completing his tasks well and is very happy when he is appreciated for doing so."

(Employer E2)

Fit between support needs of person and support provided on the job. It was recognized by all three groups of participants that persons with disabilities tend to sustain better in their jobs when the support given to the person on the job matches the level of support required by the person to perform adequately. This sub-theme was extracted from the transcripts of all eight persons, five out of six caregivers and 6sixout of the six employers. There were a total of 138 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Person P8 said,

"Sometimes my boss has high expectations. She expects me to look at dates and pricing on the products on my own when my number concept is not so good."

(Person P8)

Likewise, Caregiver C2 mentioned,

"I could see in terms of dealing with them they are firm in terms of training but you also can tell they take care of other needs like his communication and helping him with making friends with new staff who join"

(Caregiver C2)

Employer E3 also said,

"Each staff is different. You must be prepared to always give supervision and mentoring so that they get the support they need for each task. It does not mean what works for one staff will work for another."

(Employer E3)

Personal attributes of person with disability. It would appear that persons with disabilities and caregivers agree that the person's maturity level, his/her initiative on the job, emotional regulation skills, compliance to rules and instructions as well as problem solving skills as important factors in a person with disabilities sustaining in the job. This sub-theme was extracted from the transcripts of four out of six persons, five out of six caregivers and all six employers. There were a total of 47 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For example, Person P4 said,

"I tell my boss the floor is dirty and I help him clean up."

(Person P4)

Likewise, Caregiver C1 said,

"The maturity of the person is important in how he or she adapts. If they come in straight from school, they tend to be a bit more playful. Those who are older and more mature tend to cope better."

(Caregiver C1)

Also, Employer E4 said,

"He is always very receptive to instructions given by his supervisors and is a very willing worker. The thing that is good about him is that he comes in each day willing to listen to us and carry out what is needed. I think it is because he feels he does his job well."

(Employer E4)

Person's own motivation to succeed on the job. The extent of motivation to succeed in the job was recognized by persons with disabilities, caregivers and employers as crucial to OE sustainability. This sub-theme was extracted from the transcripts of all eight persons, five out of the six caregivers and five out of the six employers. There was a total of 73 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Person P7 said,

"I like everything about my job and I want to work here for a long time."

(Person P7)

Similarly, Caregiver C4 said,

"I think I'm happy because he's happy. So, he doesn't say I don't want to go to work. Everyday he's looking forward to work. Even holidays he going to work."

(Caregiver C4)

Employer E2 also mentioned,

"I also motivate them daily by encouraging them everyday in a way they like..whether it is high five or a dance..it requires you to get down to their level and understand them well."

(Employer E2)

Theme 2: Workplace- Inclusiveness, training, organisational policies, communication, accommodation and work tasks

Workplace related characteristics such as inclusive nature of work processes and organisational systems, training as well as accommodations and supports in work tasks were found to be critical to persons with disabilities maintaining employment on a job. There was a total of 453 comments from the person, employer and caregiver transcripts that supported this theme.

Clear career progression pathways. Persons with disabilities who sustain longer in their jobs tend to have clearly defined career progression pathways laid out for them by their employers. This sub-theme was extracted from the transcripts of four out of eight persons, three out of six caregivers and four out of six employers. There was a total of 12 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Person P1 said,

"'I want to get promoted…my manager said if I continue to learn more and work hard I can be promoted next time"

(Person P1)

Similarly, Employer E5 mentioned,

"We have given her the opportunity to develop in her career but she also worked hard for it. I realised she can work and then she was willing to improve her communication with people and now she is a supervisor."

(Employer E5)

Extent of inclusiveness in workplace. Employers who adopt a strengths-based approach appear to have persons with disabilities who last longer on the job. This sub-theme was extracted from the transcripts of five out of eight persons, five out of six caregivers and all six employers. There was a total of 92 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Person P1 said,

"I think I am good at what I do. I can interact with customers well in the store and my boss allows me to welcome people and I am happy because they like my work"

(Person P1)

Similarly, Employer E2 said,

"I identify strengths of each person and I accommodate to their strengths. Each person is different. They have limitations but also have strengths. If you want them to be productive and contribute, it is easier for everyone if they can do it well and like what they do."

(Employer E2)

Additionally, organisations whose policies support inclusiveness and where daily work processes are inclusive also tend to have persons with disabilities who are able to sustain in OE.

For example, Employer E4 said,

"In terms of progression, we distribute salaries and bonuses fairly, regardless of disability. They are also given the same benefits like leave and medical."

(Employer E4)

Likewise, Employer E6 added,

"We must include them in whatever we do so they do not feel left out. For example, I include them in all staff meetings and they also participate in all staff welfare activities."

(Employer E6)

Extent of personalised work accommodation. The extent of fit between workplace accommodation and support needs of the person with disability was recognised by all three participant groups as crucial to the person sustaining in OE. This sub-theme was extracted from the transcripts of all eight persons, all six caregivers and all six employers. There was a total of 34

comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Person P6 said,

"I do not need to plan my job …I just follow my colleagues' instructions after each task. My colleagues manage my time at work. This makes it easier for me and I am not confused."

(Person P6)

Additionally, persons with disabilities appear to last longer on the job when there is a higher degree of task modification and when the training pace is personalised.

For example, Caregiver C2 said,

"The pace of learning is something to be careful with. It is important that the manager gives him training that is consistent and longer-term but also gradual. We must ensure he is not over-loaded."

(Caregiver C2)

Likewise, Employer E1 said,

"The supervisor comes in at 10 a.m. so she (supervisor) has time to organise things before he (employee with disability) comes in o the store. So, we ensure he (employee with disability) always has some supervision when he is at work."

(Employer E1)

Similarly, Employer E5 said,

"We have a few ways that we support our employees with disabilities. It varies to some extent- from person to person as they all have unique needs. For example, for some, we breaking up the process in simpler steps. For others, we put in place a buddy system."

(Employer E5)

Continual training and evaluation. The degree and type of structured training and mentoring given on the job to the person with disability seems to increase the chances of the person sustaining in the job. This sub-theme was extracted from the transcripts of seven out of eight persons, five out of six caregivers and all six employers. There was a total of 45 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For example, Person P1 said,

"First time I come here my manager, colleague and supervisor all teach me how to do the things..now I am here for three years, they still teach me."

(Person P1)

Similarly, Employer E1 said,

"I review their work every week so I can try to identify their needs early and support them. They need to be re-trained regularly and provided reminders so that they do not lose the skill or 'forget'."

(Employer E1)

Likewise, Employer E2 mentioned,

"He (employee with disability) need a lot of reminders and practice so that they improve their skills. So we try to give him the chance to practice with his supervisor. I also do daily group training using pictures and also physical demonstration."

(Employer E2)

Organisational policies supporting person with disability. Employers generally shared that the having a workforce that is trained on working with people with disabilities tend to result in better outcomes in terms of employees with disabilities sustaining in their jobs. This sub-theme was extracted from the transcripts of all six employers. There was a total of 46 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Employer E2 said,

"I think training for staff helps in terms of educating our staff in terms of how to communicate and engage with them better. We organise such training regularly for staff as we have a number of employees with disabilities."

(Employer E2)

Some employers also shared that the degree of feedback exchange between management, supervisors, colleagues and the person with disability as well as regular review of organisation policies pertaining to support for employees with disabilities is important.

For instance, Employer E1 said,

"The supervisors spoke to the managers first about what we wanted to do with his (employee with disability) training and we set expectations so that we are aligned in terms of his support needs. We also discuss this with him (employee with disability)."

(Employer E1)

Further, organisations which had policies in place to increase their pool of staff with disabilities tend to have a staff with disabilities who sustain longer on the job.

For example, Employer E3 said,

"We hired our first employee with disability five years ago and now we have about six of them in our workforce, working in different stores. It is our global aim to have at least one special needs staff in each store."

(Employer E3)

Quality of communication with person with disability in workplace. It was evident that people with disabilities tend to sustain better on their jobs when they had better quality of relationships with their manager, supervisor and colleagues. This sub-theme was extracted from the transcripts of seven out of eight persons and all six employers. There was a total of 89 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Employer E4 said,

"I think building relationships in their workplace is something that would motivate them. We want them to enjoy coming to work and having a good rapport with their colleagues in important. I always tell my staff that they should take the initiative to build that rapport…not the other way round."

(Employer E4)

Additionally, persons with disabilities who have managed to sustain employment for a longer period of time tend to mention that they receive regular encouragement and appreciation for the work by their manager, supervisor and colleagues.

For example, Person P1 said,

"They talk to me and help me. They also tell me 'well done'..an I am happy when I hear that."

(Person P1)

Additionally, Person P2 said,

"I do better in my job because they appreciate me. They also do not scold me when I do wrong but they teach me again."

(Person P2)

Also, organisations which used multiple learning modes in their work setting tend to have employees with disabilities who cope better in their jobs.

For instance, Employer E1 said,

"Experiential learning is very important. I try to do that instead of just giving verbal instructions. For example, I let them observe their colleagues and they try it out on their own..then I give feedback and they try again..and again..until they get it right. It is important not to rush."

(Employer E1)

Work tasks. A higher degree of structure to work tasks and a gradual exposure to new tasks according to the person's level of readiness and capacity appear to be pertinent to a person with disabilities sustaining longer on the job. This sub-theme was extracted from the transcripts of six out of eight persons, six out of eight caregivers and five out of six employers. There was a total of 135 comments from these transcripts that were aligned to this sub-theme. It is to be noted that this sub-theme was not picked up in the transcript of the person with physical disability. Examples of comments are extracted as below.

For instance, Person P3 mentioned,

"I am only given tasks one by one and not all at one time. It is easier for me. So, I can manage by following the schedule."

(Person P3)

Further, persons who sustained longer on the jobs tend to report that they had daily reminders and refreshers on the job.

For example, Person P6 said,

"The manager does the schedule on paper every morning and I check it every time. If I do not understand anything, I ask him and he helps me. "

(Person P6)

Persons with disabilities also expressed good awareness of their job roles.

For instance, Person P3 said,

"I do folding paper, labelling, sweeping, mopping and packing."

(Person P3)

Theme 3: Employer/Supervisor- Attitudes, support and sense of responsibility

There was a total of 61 comments from the employer and person transcripts that supported this theme.

Employer's sense of social responsibility. Employers who believe that they play a role in employees with disabilities sustaining on the job tend to have employees with disabilities who are able to last longer and cope better on the job. This sub-theme was extracted from the transcripts of four out of six employers as well as one person. There was a total of nine comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Employer E3 mentioned,

"The employer plays a part in ensuring people with disabilities stay in their jobs and we need to motivate them. We know we have their limitations but also have strengths so we need to set them up for success. It is the responsibility of the entire organisation."

(Employer E3)

Role of supervisors and managers in supporting person with disability. Supervisors and managers who understood the roles of job coaches and worked closely with them tend to have better outcomes with regards to persons with disabilities being able to sustain longer on the job due to the support given to them. This sub-theme was extracted from the transcripts of four out of six employers as well as two persons. There was a total of 52 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Employer E4 said,

"I work closely with the job coach and if I think I cannot handle a problem, I will call the job coach and discuss how we can help the person better. It is important to work with the job coach closely as they understand the person better. The team work is very useful."

(Employer E4)

Further, employees with disabilities appear sustain employment longer when their managers were directly involved in the support provided for them and regularly advocated the importance of inclusion in the workplace to staff.

For instance, Employer E3 said,

"If supervisors have an issue, they will approach the manager who will then intervene. This makes it easier as they work in a team. The employee also has more people to rely on for support."

(Employer E3)

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Likewise, Employer E5 said,

"In meetings I educate staff on this. I think my staff are responsive and are inclusive in their approach with persons with disabilities. I tell them that if the person (employee with disability) fails in the job, we (employer) should ask ourselves what we could have done to support him better."

(Employer E5)

Similarly, Person P1 mentioned,

"My manager see and say help to clean...after clean he say thank you for helping"

(Person P1)

Theme 4: Caregiver attitudes, beliefs and support

There was a total of 113 comments from the six caregiver transcripts that supported this theme.

Active caregiver support. It was evident that persons with disabilities who had caregivers working closely with job coaches sustained longer in OE. This sub-theme was extracted from the transcripts of five out of six caregivers. There was a total of 38 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C2 said,

"The job coach will be better in assessing the situation and if any problem comes that my child faces at work, she will inform us and we work on it together with the employer."

(Caregiver C2)

Further, supportive caregivers tend to play an active role in goal setting and problem solving processes.

For instance, Caregiver C3 said,

"He wants to improve and progress in his job. He also wants to work for a long time so he can buy a house and eventually live independently. So, we try to help him. Together with his employer, and him as well, we plan in terms of the training he is going to take in the next four years "

(Caregiver C3)

Similarly, Caregiver C6 said,

"I try to find out from the supervisor how he is doing in his work. I try to reinforce the learning, get the problem and working with him to problem solve"

(Caregiver C6)

Caregiver belief that child can succeed in the job. Caregivers whose child sustained longer in employment tend to have the belief that their child can gain and maintain a job. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 24 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C1 said,

"As a family member, if you don't have confidence that he can do well, then how can you expect him to do well? "

(Caregiver C1)

Caregiver belief that employer is committed to supporting child on the job. Caregivers who perceived that the employer was ready and willing to support their child on the job tend to find that their children are able to last longer in OE. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 18 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C2 said,

"I think they (employer) are very good. They embrace and enhance her special skills. It is so important that they see her potential contribution to the company and are willing to help her get better at the job."

(Caregiver C2)

Caregiver attitude towards work tasks and work safety. Persons with disabilities who sustained longer in OE tend to have caregivers who perceive the work environment as safe and the work tasks as being aligned to their child's strengths. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 13 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C1 said,

 "It is important that the range of tasks that taps into his strengths so that he can contribute something to the company. Otherwise, they will not see value in keeping him. "

(Caregiver C1)

Likewise, Caregiver C3 said,

"I like the safety and the security that the environment brings. It tells me that they care for my daughter and are invested in ensuring she can work comfortably."

(Caregiver C3)

Caregiver attitude towards workplace inclusiveness, autonomy and choice. Persons with disabilities who sustained longer in OE tend to have caregivers who perceive that the workplace is inclusive and provides their child with autonomy and choice. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 16 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C4 said,

"We have come to this stage where society is inclusive so people have to be patient them. I like it that her colleagues and bosses are all very understanding and they empower her a lot by involving her in discussions and meetings."

(Caregiver C4)

Likewise, Caregiver C2 said,

"They (employer) have the correct balance of being protective and also being able to allow him to face the problem while guiding him. This is critical."

(Caregiver C2)

Caregiver perceived competency in supporting person on the job.
Caregivers who had undergone some form of training in supporting persons with disabilities and who perceived themselves as competent in providing support tend to have children who have better outcomes in OE sustainability. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 19 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C5 said,

"I must try to help him so he can succeed. I try to find out from the job coach and supervisor at the workplace about how he is doing and what I can teach him at home to help him. For example, I taught him how to follow instructions and to follow a schedule. I also reminded him of his tasks at work as the supervisor gave me a copy of his schedule. When I do not know how to teach him something, I go for talks which are organised."

(Caregiver C5)

Caregiver perception on quality of relationship with child. Persons with disabilities who shared work related issues with their caregivers appear to last longer on the job. This sub-theme was extracted from the transcripts of 4 out of 6 caregivers. There was a total of 21 comments from these transcripts that were aligned to this sub-theme. Examples of comments are extracted as below.

For instance, Caregiver C6 said,

"You know sometimes when he comes home and releases everything. I am really thankful he tells me everything. This trust is very important."

(Caregiver C6)

Summary of interview data analysis

The results of the interview phase revealed the factors that are pertinent in OE sustainability for persons with disabilities. These included a) personal characteristics like motivation and socio-emotional management skills, b) workplace characteristics like communication, training, accommodation, support and work tasks, c) employer characteristics like policies, inclusiveness, attitudes, support and sense of social responsibility as well as d) caregiver characteristics like attitudes and beliefs of the caregiver towards the person's ability to succeed and the caregiver's readiness to provide support for the person throughout the employment journey.

The results have provided an understanding of the important characteristics of employment sustainability for persons with disabilities from persons themselves as well as their caregivers and employers. Nevertheless, the limited representation in the interview sample does not allow us to make concrete conclusions. As the purpose of the study was to develop a framework of sustainable employment that is applicable to different disability types, as well as across any job industry, it was necessary to validate the interview results with a survey covering a bigger sample of persons with disabilities in different job industries so that there is a higher level of generalizability, reliability and validity.

Survey data analyses

Descriptive statistics of survey

Thirteen job coaches participated in the survey. In total, they supported 133 persons with disabilities in open employment.

Table 5 presents the mean values for the variables used in the analysis for persons with disabilities and Table 6 shows the mean values for the variables used in the analysis for the persons with disabilities in employment as well as their job coaches. Amongst people with disabilities, as defined by either having a physical or intellectual disability, 38.3% were females and 61.7% were males. 89.3% were less than 40 years of age and 10.7% were 40 years or older. 26.3% had a physical disability and 73.7% of them had an intellectual disability. 79.7% have been maintaining their employment for at least the last 8 months while 20.3% had dropped out of their jobs. Of those still in their jobs, 52.8% worked in the F&B spell out industry, 16% worked in the hotel industry, 11.3% worked in retail, 4.7% worked in the laundry services, 3.8% worked in admin roles, 2.8% worked in horticulture, 1.9% worked in Healthcare, 1.9% worked in the cleaning industry and the remaining 4.8% of them were equally represented in call centre, library, marine, packing and production sectors respectively. Of those who have dropped out of their jobs, 18.5% worked in the F&B industry, 18.5% worked in retail, 18.5% worked in the laundry services, 7.4% worked in logistics, 7.4% worked in manufacturing, 7.4% were in admin roles while the 22.3% of them were equally represented in the cleaning, education, healthcare, horticulture, hotel and packing industries respectively. Amongst the job coaches, 26.3% were supporting persons with physical disabilities and 73.7% supported people with intellectual disabilities. 33.8% had experience as a job coach for more than 5 years while 24.8%

had 3-5 years of such experience and 41.4% had less than 3 years of such experience.

75.1% had received some form of formal job coaching training while 24.9% did not

have such training.

Table 5

Descriptive statistics of persons with disabilities in the survey (N=133)

Gender	N	%
Females	51	38.3%
Males	82	61.7%
Age group	N	%
Below 40	119	89.3%
40 and above	14	10.7%
Disability type	N	%
Physical	35	26.3%
Intellectual	98	73.7%
Employment outcome and job industry	N	%
Still in job	106	79.7%
a) F&B	56	52.8%
b) Retail	13	11.3%
c) Hotel	18	16%
d) Laundry	5	4.7%
e) Healthcare	2	1.9%
f) Horticulture	3	2.8%
g) Admin	4	3.8%
h) Call centre	1	0.9%
i) Library	1	0.9%
j) Marine	1	0.9%
k) Packing	1	0.9%
l) Production	1	0.9%
Dropped out	27	20.3%
a) F&B	5	18.5%
b) Retail	5	18.5%
c) Laundry	5	18.5%
d) Manufacturing	2	7.4%
e) Horticulture	1	3.7%
f) Admin	2	7.4%
g) Logistics	2	7.4%
h) Cleaning	1	3.7%
i) Healthcare	1	3.7%
j) Education	1	3.7%
k) Packing	1	3.7%
l) Hotel	1	3.7%

Table 6

Descriptive statistics of 13 job coaches who filled in the survey

Disability type supported	N	%
Physical	4	26.3%
Intellectual	9	73.7%
Job experience		
Below 3 years	6	41.4%
3-5 years	3	24.8%
More than 5 years	4	33.8%
Formal Training Received		
Yes	10	75.1%
No	3	24.9%

Factor Analysis

A Principal Axis Factor (PAF) with a Varimax (orthogonal) rotation of the 55 Likert scale items from the survey questionnaire was conducted on data gathered from 133 questionnaires filled out by job coaches. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=.828). Scree plot indicated a four factor structure, is illustrated in Figure 4.

Figure 4

Scree Plot indicating 4 factor structure
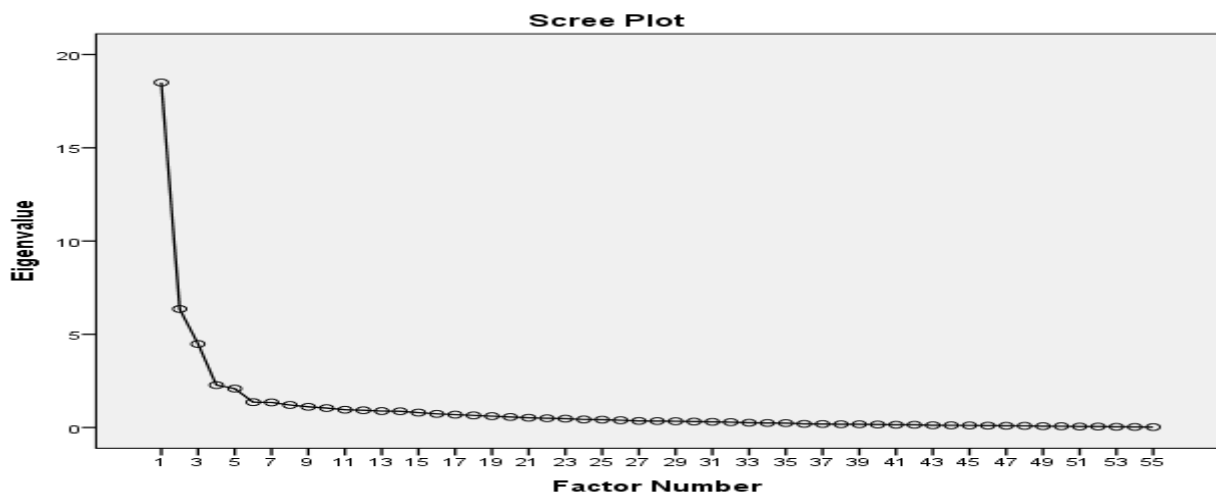
When analyses were re-run, specifying four factors with loadings less than 0.30 being excluded, the analysis yielded an four-factor solution with none of the 55 items excluded. After rotation, the first factor had 35 items which loaded on it accounting for 33.6% of the variance with factor loadings from 0.309 to 0.747. The second factor had 14 items which loaded on it accounting for 11.6% of the variance with factor loadings from 0.305 to 0.854. The third factor had 11 items which loaded on it accounting for 8.1% of the variance with factor loadings from 0.403 to 0.805. The fourth factor had 9 items which loaded on it accounting for 4.1% of the variance with factor loadings from 0.311 to 0.581. Fourteen of the 55 items loaded on two different factors. The results of an orthogonal rotation are shown in Appendix Three.

The four-factor structure. The items in each of the four factors were analysed to make sense of the underlying construct common to them. In collaboration with the advisory group, the 14 items which loaded in two different factors were reviewed as to which factor they would be best placed, based on their meaning and practicality. Based on this process, a decision was made to assign them to one factor. The final four factor structure is illustrated in Appendix Four.

Thirty items loaded onto Factor 1. Examples of these items were 'The policies in place in the workplace are fair and inclusive', 'There is inclusion in the work setting and daily work processes', 'There is regular review of the work performance by the employer' as well as 'Training is given to organisation's staff on supporting persons with disabilities'. These 30 items all relate to the employer's policies, processes and culture. This factor was labelled, "Employer Characteristics", having excellent internal consistency of .954.

Ten items loaded onto a second factor. Examples of these items were 'Person with disability has high level of interest in work tasks', 'Person with disability enjoys work environment' and 'Person with disability has good problem solving skills'. These 10 items were related to the motivation level, adaptability and socio-emotional capabilities of the person with disability. This factor was thus labelled 'Person-related Characteristics', having excellent internal consistency of .933.

Ten items loaded onto a third factor. Examples of these items were 'Caregiver is actively involved in supporting person with disability on the job', 'Caregiver is confident of supporting person so that the person can sustain in the job' as well as 'Caregiver works closely with job coaches throughout job placement'. These 10 items were related to the extent of support from the family of the persons with disability, their belief in empowering their child/ward with a disability to lead an independent life as well as their belief that their child/ward would succeed in the job. This factor was labelled 'Caregiver-related Characteristics', having excellent internal consistency of .931.

The fourth factor had five items loaded onto it and they represented more technical support characteristics such as customized workplace accommodation, training and support. Examples of items in this factor were 'Work accommodation is personalised according to the individual needs of the person with disability', 'There is sufficient task modification where necessary' as well as 'Pace of training at the work site is customised to person'. This factor was thus labelled 'Workplace Characteristics', having good internal consistency of .792.

The entire survey had an internal consistency of .957. Appendix Three outlines the factors, items that loaded on each and their factor loadings as well as the internal consistencies of each factor.

Comparison of total survey scores (Overall Sustainability Characteristics)

To determine if there was a significant difference in scores of people with disabilities who are successfully maintaining their employment versus those who have dropped out, independent samples t-tests were performed comparing the mean survey scores and individual factor scores of people with disabilities from the two groups. People with disabilities who were still maintaining their employment (M = 162.99, SD = 15.26, N = 106) had higher total survey scores than those who had dropped out (M = 143.64, SD = 15.19, N = 27), t(113) = -5.84, p < .001, two-tailed. The difference of 19.35 scale units indicated a very large effect (cohen's d=1.10).

Comparison of scores on factor A (Employer-related Characteristics)

People with disabilities who were still maintaining their employment (M = 89.16, SD = 9.15, N = 106) had higher total survey scores than those who had dropped out (M = 80.82, SD = 11.74, N = 27), t(113) = -3.91, p < .001, two-tailed. The difference of 8.34 scale units indicated a fairly large effect (cohen's d=0.74).

Comparison of scores on factor B (Person-related Characteristics)

People with disabilities who were still maintaining their employment (M = 29.86, SD = 3.83, N = 106) had higher total survey scores than those who had dropped out (M = 23.29, SD = 5.15, N = 27), t(113) = -7.24, p < .001, two-tailed. The difference of 6.58 scale units indicated a very large effect (cohen's d=1.36).

Comparison of scores on factor C (Caregiver-related Characteristics)

People with disabilities who were still maintaining their employment (M = 29.14, SD = 4.76, N = 106) had higher total survey scores than those who had dropped out (M = 25.36, SD = 5.68, N = 27), t(113) = -3.48, p < .001, two-tailed. The difference of 3.78 scale units indicated a larger than medium effect size (cohen's d=0.65).

Comparison of scores on factor D (Workplace Characteristics)

People with disabilities who were still maintaining their employment (M = 14.83, SD = 1.69, N = 106) and those who had dropped out (M = 14.18, SD = 1.85, N = 27) did not differ significantly in their scores on this factor t(113) = -1.73, p = .086, two-tailed.

Overall sustainability characteristics (total survey score) as a predictor of employment outcome

Logistic regression was performed to ascertain the effects of total survey scores (Overall sustainability characteristics) as well as employer, person, caregiver and workplace related characteristics as individual predictors respectively on actual employment outcome.

The logistic regression model using overall sustainability (total survey score) as a single predictor of actual employment outcome was statistically significant, $\chi^2(1)$ = 31.5, *p* < .001. The model explained 42.2% (Nagelkerke R^2) of the variance in employment outcome and correctly classified 79.6% of cases. Table 7 shows the summary of this analysis.

Table 7

Logistic Regression Analysis for Overall Sustainability Characteristics Predicting Employment Outcome of Persons with Disabilities

Variable	B	Odds ratio
Constant	-16.9	
Overall Sustainability Characteristics	.116***	1.123
Nagelkerke pseudo r-square	42.2%	
Chi-square	31.5, df=1,p<.001	
Hosmer & Lemeshow test	P=.779	
Classification accuracy	79.6%	

*p<.05; **=p<.01, ***=p<.001

Employer-related characteristics as a predictor of employment outcome

The logistic regression model using Employer-related characteristics as a single predictor of actual employment outcome was statistically significant, $\chi^2(1) = 15.96$, $p < .001$. The model explained 23.2% (Nagelkerke R^2) of the variance in employment outcome and correctly classified 77.4% of cases. Table 8 shows the summary of this analysis.

Table 8

Logistic Regression Analysis for Employer-related Characteristics Predicting Employment Outcome of Persons with Disabilities

Variable	B	Odds ratio
Constant	-7.74	
Employer-related Characteristics	.109**	1.115
Nagelkerke pseudo r-square	23.2%	
Chi-square	15.96,df=1,p<.001	
Hosmer & Lemeshow test	P=.289	
Classification accuracy	77.4%	

*p<.05; **=p<.01, ***=p<.001

Person-related characteristics as a predictor of employment outcome

The logistic regression model using Person-related characteristics as a single predictor of actual employment outcome was statistically significant, $\chi^2(1) = 40.21$, $p < .001$. The model explained 51.6% (Nagelkerke R^2) of the variance in employment outcome and correctly classified 87.1% of cases. Table 9 shows the summary of this analysis.

Table 9

Logistic Regression Analysis for Person-related Characteristics Predicting Employment Outcome of Persons with Disabilities

Variable	B	Odds ratio
Constant	-7.74	
Person-related Characteristics	.429***	1.536
Nagelkerke pseudo r-square	51.6%	
Chi-square	40.21,df=1,p<.001	
Hosmer & Lemeshow test	P=.088	
Classification accuracy	87.1%	

*p<.05; **=p<.01, ***=p<.001

Caregiver-related characteristics as a predictor of employment outcome

The logistic regression model using Caregiver-related characteristics as a single predictor of actual employment outcome was statistically significant, $\chi^2(1) = 7.65$, $p < .01$. The model explained 11.6% (Nagelkerke R^2) of the variance in employment outcome and correctly classified 74.2% of cases. Table 10 shows the summary of this analysis.

Table 10

Logistic Regression Analysis for Caregiver-related Characteristics Predicting Employment Outcome of Persons with Disabilities

Variable	B	Odds ratio
Constant	-2.28	
Caregiver-related Characteristics	.11**	1.117
Nagelkerke pseudo r-square	11.6%	
Chi-square	7.65,df=1,p<.01	
Hosmer & Lemeshow test	P=.959	
Classification accuracy	74.2%	

*p<.05; **=p<.01, ***=p<.001

Workplace characteristics as a predictor of employment outcome

The logistic regression model using Workplace characteristics as a single predictor of actual employment outcome was not statistically significant, $\chi^2(1) =2.61$, $p = .106$. Table 11 shows the summary of this analysis.

Table 11

Logistic Regression Analysis for Workplace Characteristics Predicting Employment Outcome of Persons with Disabilities

Variable	B	Odds ratio
Constant	-2.03	
Workplace Characteristics	.178	1.195
Nagelkerke pseudo r-square	4.1%	
Chi-square	2.61,df=1,p=.106	
Hosmer & Lemeshow test	P=.213	
Classification accuracy	73.1%	

*p<.05; **=p<.01, ***=p<.001

Receiver Operating Characteristics (ROC) Analysis

Given that the survey was intended to be used as a diagnostic tool to predict likelihood of a person with disability maintaining employment when placed in a particular job, ROC Analysis was done to determine the diagnostic accuracy of the

survey as well as a proposed cut-off score to differentiate successful from unsuccessful OE. Table 12 shows that the survey displayed good diagnostic power in differentiating successful OE from unsuccessful OE (AUC=.841, p=.000), while Table 13 proposes that a cut-off score of 150 is both sensitive (.851) and specific (.286) as a diagnostic tool to determine the likelihood of success of the person with disability on a particular job he/she is placed in.

Table 12

Area under the curve for ROC analysis for survey

			Asymptotic 95% Confidence Interval	
Area	Std. Error[a]	Asymptotic Sig.[b]	Lower Bound	Upper Bound
.841	.042	.000	.758	.924

Table 13

Comparison of possible cut-off scores to predict successful and unsuccessful OE

Cut-off score	Sensitivity	1-Specificity
.	.	.
.	.	.
149	.908	.357
150	.851	.286
151	.805	.286
.	.	.
.	.	.

Summary

The results supported the case for a framework for sustainable and successful OE to be built on the four factors. The findings from the survey phase of the study appeared to be consistent with the findings from the thematic analyses conducted at the interview phase. The exploratory factor analysis indicated four factors that were

aligned with the four broad themes from the interviews- person characteristics, employer characteristics, workplace characteristics and caregiver characteristics. Further, the good internal consistencies of all the factors (Cronbach's alpha: .792 to .954) as well as the survey in its entirety (Cronbach's alpha: .957) indicated that they are each reliable in terms of measuring the same underlying constructs.

In terms of the secondary aim of exploring the feasibility of a diagnostic tool being developed to screen for OE sustainability of a person with disability when placed on a particular job, the binary logistic regression analyses and independent sample t-tests indicated that, the whole survey, as well as the first three factors (independently), all differentiated between successful and unsuccessful OE. However, the last factor (Workplace Characteristics) appeared to be unable to differentiate and predict employment outcome when used independently. As such, the results suggested that the survey maybe used in its entirety when job coaches are screening for the likelihood of a person's successful sustainability when placed in a particular job. The ROC analysis indicated that the survey as a whole has good diagnostic accuracy in terms of employment outcome well and that a 150 cut-off score on the entire survey has acceptable sensitivity and specificity in differentiating successful and unsuccessful OE for a person with disability on any job. This is particularly useful in terms of applying a systematic, objective and person-centred approach when job coaches assess the suitability of a job for a person, in terms of the fit between the support needs of the person with the job profile and support being provided by the employer.

Chapter Eight: Synthesis of the results to develop the framework for sustainable and successful open employment for persons with disabilities

Alignment of research findings with conceptual model

The conceptual model that guided the thinking and approach to the development of the study's research aims and methodology had a number of key concepts and best-practice enablers to bring about improved independence and QoL for persons with disabilities. The Ecological Systems Theory (Bronfenbrenner, 1977, 1979) was used to frame the concepts and enablers. Person, microsystem, mesosystem, exosystem and macrosystem level factors that influence the outcomes of independence and QoL were identified. The independent living definition of disability was adopted to align with the intended outcomes of independence and QoL. Human rights and the ICF were key concepts that underpinned the model while best-practice enablers such as person-centred planning/practice, active support, learning support and ABA, transition planning and evidence-based practice were levers to facilitate the attainment of the outcomes.

According to Cocks et al., (2015), studies have shown that positive employment outcomes contribute to good overall QoL in people with disabilities. Specifically, Beyer et al., (2010) found that people with disabilities employed in the open labour market had better QoL than those who were in sheltered employment or day activity services. Given that employment is a key contributor of QoL for adults with disabilities, the alignment of the findings of the study to the conceptual model is important in the development of the framework for sustainable and successful OE.

Results in the context of the conceptual model

Person-level characteristics

The results suggested that certain factors intrinsic to the person with disability contributed to success in maintaining employment. According to Vornholt et al., (2018), successful and sustainable employment of people with disabilities in the open labour market is a dynamic process of interaction among different factors, including person characteristics. Raskind et al., (1999) as well as Werner (1993) found that self-awareness, pro-activity, perseverance, goal setting, effective use of social support systems, emotional stability and emotional coping strategies are important person factors. Further, Graffam et al., (2002) found that employers rated person factors as most important while management and operational cost factors were rated as moderately important. In a similar vein, the conceptual model that is based on the ecological system theory frame also has the person in the centre, wrapped by different layers of environmental factors that influence his/her QoL outcome.

Results from this study supported the evidence for person-related factors contributing to employment sustainability. Findings from the interviews showed that person-related characteristics emerged as a theme which had four sub-themes that clustered under it: Fit between person's interest and job; Fit between support needs of person and support provided on the job; Personal attributes of person with disability; and Person's own motivation to succeed on the job. The results of the factor analysis of the survey have also demonstrated eight characteristics that are intrinsic to the person and contributed to success in maintaining employment. These were: motivation to succeed in job, interest in work tasks and environment, ability to carry out job tasks, initiative on job, emotional regulation, compliance, problem

solving skills and perceived clarity of job role. These eight characteristics aligned with the four sub-themes under the 'person-level characteristics' theme from the interview data. Appendix Five shows the alignment of the theme and sub-themes from the interview data, as well as the characteristics that showed up from the factor analyses of the survey that support the person-level component of the conceptual model.

Microsystem characteristics

The evidence also showed that certain microsystem-level factors contributed to success in maintaining employment. These included family/caregiver support and job coaches' support. Family support has been highlighted as a critical factor by (Marrone et al., (1995). It has also been found that families who provide their children with disabilities opportunities to plan, learn and manage their lives as they grow up tend to contribute to the successful transition to employment of their children (Martin et al., 1993). Similarly, Morningstar et al., (1995) further specified that family involvement in the transition process as well as in the self-determination process were pertinent factors in the transition of a person with disability from school to adult life. Importantly, the role of job coaches in employment sustainability has also been highlighted. Specifically, the use of personal connections to enhance social support, matching individual preferences and attributes to work-site social climates, collaborating with work-site personnel to develop adaptations and modifications, facilitating and supporting the involvement of work-site personnel; and providing general consultation focused on person-environment factors that promote both the success of the supported employee and the overall business, have been found to be critical roles of job coaches in setting their clients up for success (Rogan et al., 1993).

In the conceptual model informed by the ecological systems theory, the microsystem level is the closest and most direct influence on the person. It would include close relationships who are in direct and regular contact with the person, such as family and job coaches.

Results from the interviews supported this- 'caregiver-related characteristics' was a theme with seven sub-themes that clustered under it. These sub-themes were: Active caregiver support, Caregiver belief that child can succeed in the job, Caregiver belief that employer is committed to supporting child on the job, Caregiver attitude towards work tasks and work safety, Caregiver attitude towards workplace inclusiveness, autonomy and choice, Caregiver perceived competency in supporting person on the job as well as Caregiver perception on quality of relationship with child. Similarly, the factor analysis of the survey data showed up ten microsystem-level characteristics that contributed to successful employment. See Appendix Five for further detail which shows the alignment of these ten characteristics with the themes and sub-themes from the interview data and how they support the microsystem-level of the conceptual model.

However, the study did not pick up the role of the job coach as a significant factor, which needs to be highlighted as an area to investigate further. This is especially so, since Storey, (2003) found that when job coaches' support is embedded within natural supports in the workplace, the employment outcomes tend to be better.

Mesosystem characteristics

The evidence from the literature also shows that certain mesosystem-level factors contribute to success in maintaining employment. These include relationships with co-workers/supervisors/managers, degree of person-centred accommodations and supports, adequate staff training, willingness of supervisor/manager to work collaboratively with job coaches. Support given to the person with disability in terms of employment coaching, specialized job training, individually tailored supervision, transportation, and assistive technology can be critical in sustainability of the person in the job (WHO, 2011). Additionally, the nature of the job, the characteristics of the work environment, as well as the availability of supportive services and accommodations have been found to contribute to the successful and sustainable employment of persons with disabilities (Vornholt et al., 2018). Similarly, open dialogue between employee and supervisor, facilitation of the person's participation in decisions related to developing job related goals and plan of action as well as mutual respect were also found to be important (Dunst et al., 2015).

In the conceptual model, the mesosystem level is the next closest influence on the person, after the microsystem. It would include relationships the person has in the workplace with peers, supervisors and managers, the extent and type of accommodation and supports, as well as the characteristics of the job the person is doing.

Results from the interviews supported this- 'workplace characteristics' was a theme which had three sub-themes that would fall under the mesosystem level of influence. These were: Extent of personalised work accommodation, Quality of communication with person with disability in workplace and Work tasks.

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Similarly, the factor analysis of the survey data showed up 15 mesosystem-level characteristics that contributed to successful employment. These included: 'Work accommodation is personalised according to the individual needs of the person with disability, 'There is sufficient task modification where necessary', 'There is good quality of communication in the workplace between person with disability, his/her colleagues, supervisor(s) and manager(s)' as well as 'Pace of training at the work site is customised to person'. Appendix Five shows the alignment of the themes and sub-themes from the interview data as well as the survey results and how they support the mesosystem-level of the conceptual model.

Exosystem characteristics

Literature has shown that certain exosystem-level factors contribute to success in maintaining employment. These include degree of inclusiveness in organisation processes and systems including HR hiring, training and retention practices, career progression and professional development planning processes, degree of alignment of corporate social responsibility in organisational strategy, belief in value-add of employees with disabilities to organisation, employer's competency in utilisation of supports/government supported schemes to improve employment outcomes. For example, Attridge et al., (2010) found that the extent the employer has employed a person with disability before is vital in OE job retention. The support for the supervisors by higher management and a management belief that people with disability can succeed like anyone else have also been found to be critical to building a culture of inclusiveness (Dunst et al., 2015). Additionally, the negative attitudes that result in discriminatory organizational cultures were also found to impede success for employees with disabilities (Murfitt et al., 2018).

The hiring efforts of employers were associated with the company's diversity climate and inclusion of disability in diversity efforts (Chan et al., 2010). Corbière et al., (2013) also shared that a lack of health and safety policy, inappropriate work schedules, misunderstanding disability, erroneous beliefs and lack of knowledge, fear, personnel practices and policies, poor teamwork as well as a non-inclusive organizational culture were barriers to successful OE.

Results from these interviews and survey supported the role of exosystem-related factors in employment sustainability. Four sub-themes under the 'Workplace characteristics' theme supported the exosystem influence on the person's employment outcome- career progression pathways, extent of inclusiveness in workplace, continual training and evaluation, organisational policies supporting person with disability. Additionally, another theme from the interview data- 'Ëmployer Characteristics' also has a sub-theme that would be considered to be part of the exosystem- 'ëmployer's sense of social responsibility'. Factor analysis from the survey data also identified 20 survey items that supported the exosystem level of influence on employment outcome of a person with disability. These are summarised in Appendix Five.

Macrosystem characteristics.

Literature has suggested that certain macrosystem-level factors contribute to success in maintaining employment. These include relevant government policies and related schemes supporting disability employment, and attitudes in society to inclusive workplaces. In Australia, employers were informed on the economic viability of employing and sustaining persons with disabilities (ACCI, 2012). Specifically, they were encouraged to focus on individualized support and accommodation as well as a

strengths- based approach to ensure a good fit between the person's needs and the job demands (ACCI, 2012). Likewise, in Singapore, there are government supported initiatives such as the 'Open Door' fund which employers can tap on to train their employees with disabilities as well as the 'Job re-design' programme where they can work with job support agencies to re-scope work tasks for employees with disabilities to better align to their needs. However, there is a dearth of previous studies which examined the effectiveness of these macrosystem-level initiatives on employment sustainability. Additionally, the results from the interview data and the survey did not shed further light on these factors having a direct impact on employment sustainability for persons with disability.

Proposed Framework for successful and sustainable OE

The conceptual model (Figure 1 p. 52) proposed that persons with disabilities' overall QoL and independence outcomes, including employment, would be influenced by not just factors intrinsic to the person, but also environmental influences at four different levels- microsystem, mesosystem, exosystem and mesosystem. Factor analysis of the 55-item survey in this study yielded four factors which mirrored the four themes that emerged with the interview data- person-related factors, caregiver/family related factors, work-setting related factors and employer-related factors. The findings from this study, both the interview and survey data, supported the conceptual model informed by the ecological systems theory (Bronfenbrenner, 1977, 1979). The four factors and specific items within each factor have been discussed as to how they relate to one or more of these different levels in the model. Further, results also showed that the survey items (sustainability factors) were able to differentiate between successful and unsuccessful OE as well as predict

OE outcome reasonably well. This further supports the value of developing a sustainability Framework based on the conceptual model. (See Figure 5)

The Framework is supported by the independent living model of disability, which advocates for the need to provide supports to allow persons with disabilities to live independently in the community (Pfeiffer, 2002). This model informs the intended outcomes of the Framework which is for improved independence, employment sustainability and overall QoL for persons with disablities.

The Framework is also underpinned by the United Nations' Convention on the Rights of Persons with Disabilities (UNCRPD) and the International Classification of Functioning (ICF). The UNCRPD emphasises that persons with disabilities have a right to be given opportunities to fair and inclusive employment opportunities and practices. The ICF supports the move away from the deficit and rehabilitation view of employment to one that focuses on support needs.

The Framework also considers the inclusion of enablers to facilitate the sustainability factors spread across the Person, microsystem, mesosystem, exosystem and macrosystem levels. Examples of these enablers include active support, learning support and ABA, person-centred approach, evidence-based practice, transition planning, societal attitudes towards inclusive employment, technological innovation as well as consideration of disability economics in terms of hiring persons with disabilities.

However, the Framework needs to go beyond the findings of this study as there are pertinent macrosystem-level factors that were not picked up by the interviews and the survey. This would include national policies, schemes and legislation that support persons with disabilities, their families and employers with a

view to improving employment opportunities and outcomes. The overarching

Framework is shown in Figure 5 below. The detailed Framework with expanded

sustainability factors is shown in Appendix Six.

Figure 5

Proposed Framework for employment sustainability for persons with disabilities

Theoretical Underpinnings

- Human Rights (UNCRPD)
- International Classification of Functioning (ICF), (WHO, 2011)
- Ecological systems theory (Bronfenbrenner, 1977, 1979)

Person-level sustainability factors

Enablers

- Societal awareness, acceptance and participation in inclusive activities

Enablers

- Transition planning
- Active Support
- Evidence-based practice
- Person-centred planning

National Policies/schemes/legislation related sustainability factors

Sustainable and Successful Open Employment

Caregiver /support agency/ advocacy related sustainability factors

Enablers

- Transition planning
- Active Support
- Positive Behaviour Support
- Evidence-based practice

Enablers

- Economics of hiring persons with disabilities (cost-benefits analysis)
- Inclusive systems

Employer/ Organisation-related sustainability factors

Workplace relationships, supports, accommodations and tasks related sustainability factors

Enablers

- Person-centred practice
- Positive Behaviour Support
- Active Support
- Technological innovation

Supporting Disability Model

Independent Living Model (Pfeiffer, 2002)

Summary

The Framework for sustainable and successful employment of persons with disabilities in the open labour market has three key features. Firstly, it supports the conceptual model in Chapter Two, which is based on the ecological systems theory (Bronfenbrenner, 1977, 1979). This means the Framework looks at the sustainability of employment for persons with disabilities as being reliant on an entire ecosystem- with the person being wrapped around by factors at the different ecological levels of the microsystem, mesosystem, exosystem and macrosystem. The Framework posits that these factors must be assessed in its entirety and not in silo to obtain a realistic picture of the likelihood of a person with disability sustaining in a job in the open labour market. Secondly, the Framework recommends best-practice enablers at the various ecological levels that help to facilitate the adoption of the sustainability factors. These enablers inform the different stakeholders in the employment ecosystem- persons with disabilities, job coaches, employers, caregivers and policy makers, on some of the competencies, structures and systems that are required to be built or enhanced so that the sustainability factors can be adopted effectively at the different levels. Finally, the Framework is outcomes driven, in that it intends to bring about improved employment, independent living and overall QoL improvements as outcomes for persons with disabilities. The following chapter discusses the implications of the Framework at the practice, research and policy levels, while also exploring some of the strengths and limitations of the study.

Chapter Nine: Discussion

This study sought to identify potential gaps in disability Open Employment (OE), as well as provide insights into factors that may contribute to persons with disabilities sustaining in a job in the open labour market. As an outcome, it proposed a Framework of OE sustainability which would encompass important factors to inform a systematic approach to job placement and job support for persons with disabilities across different job industries. The intended impact of this was to improve employment retention rates for persons with disabilities in the open labour market.

In the context of the research aims, this chapter will critically analyse the research findings, the proposed Framework and the value it adds to the field of disability at the policy, practice and research levels. Strengths and limitations of the study will also be discussed.

Research Aims

It is suggested that the primary aim of the study has been met as the study has culminated in an evidence-based Framework for sustainable and successful OE for persons with disabilities that is flexible enough to be applicable to a wide range of job industries. The principal consideration in conceptualising the study was that the Framework has to be one which different stakeholders in the disability employment landscape- (policy makers, employers, job coaches, families and persons with disabilities themselves), can refer to when developing policies, implementing practices/support systems in the work place and at home as well as carrying out advocacy work to facilitate inclusive hiring and long-term retention of employees with disabilities. The Framework which has been developed brings together sustainability factors intrinsic to the person and those at the different levels of the environment,

making it applicable to the different stakeholders in the ecosystem of supporting persons with disabilities in the open labour market.

The previous chapter discussed the details of the development of the Framework for OE sustainability from the results of this study. The Framework adds value to the current disability employment landscape by overcoming some of the existing gaps at the practice, policy and research levels.

The secondary aim of the study was to explore the feasibility of developing a diagnostic instrument for OE sustainability. The results of the study showed that the 55-item survey was able to differentiate between successful and unsuccessful OE placements and was able to also predict employment outcome. A suitable cut-off score was also established from the entire survey to differentiate successful and unsuccessful OE with sufficient sensitivity and specificity. Implications for practice and further research are discussed later in this chapter.

Practice and research implications

An integrated and 'eco-system' approach to support planning in open employment

The first implication at the practice level is that the Framework allows for an integrated approach to assessing the support needs of the person by factoring the different elements of the environment, with a clear outcome of working towards employment sustainability. This overcomes the existing lack of holistic and integrated needs assessment and support planning that assesses the needs and supports from an ecological perspective. The Framework reframes the role of job coaches, co-workers, supervisors, managers, caregivers to one that brings them together in an

'eco-system of support' for the person with disability from the time of placement, training and development for the person with disability.

Currently, vocational assessment and school-to-work transition plans have focused almost exclusively on the skills and abilities of the person with disability with view to identifying a suitable job match. There is little emphasis, if any, to the broader environmental influences. For example, despite the literature highlighting that the family/caregiving context makes up the most direct influence on the person's life, there is little focus on this area in the context of employment preparation and post-placement support. In a study of attitudes of caregivers of people with high support needs towards employment, Ford et al., (1995) emphasized the need for greater communication between the service providers and families as crucial to employment outcomes. In identifying specific caregiver/family related sustainability factors, the Framework will allow job coaches to understand more about the microsystem-level factors of a person with disability, with view to the outcome of maintaining a job in the open labour market.

Further, it has been known that factors related to the workplace and the broader organization also influence the person's chances of employment sustainability. However, vocational assessments currently try to fit the person to the job without really understanding what potential employers are able to provide in terms of specific workplace and job task accommodations and supports to cater to the prospective employee with disability. This is especially pertinent, considering that every person has unique strengths and would require supports catered to suit his/her individualized needs to perform the job effectively and be set-up for success in the longer term. Disability is a wide spectrum and within each disability sub-type, the needs of each person are still heterogeneous.

Hence, each person's environmental influences also need to be understood in a person-centred manner in the vocational assessment and job placement/support process. This is required so that there is a focus on the person-environment fit. The proposed Framework will allow job coaches and employers to assess the extent environmental sustainability factors are in place to set the person up for success in maintaining employment. Further, the Framework will ensure that sustainability factors cover the different levels of environmental influence. An example is that, in the Framework, broader organizational culture and policies that promote inclusion and person-centred support for persons with disabilities are also assessed to determine the chances of sustainability for a person in a specific job within an identified organization. Another example is the consideration the framework gives to macro-level sustainability factors, such as government policies and schemes to support employers in building and sustaining inclusive workforce as well as developing a societal attitude that supports inclusion in the open labour market.

Hence, the Framework overcomes the lack of holistic and integrated needs/supports assessment with the aim of job sustainability by taking a multi-faceted approach to the vocational assessment process that integrates person-related factors with environmental factors at the different levels. The Framework looks at support from the perspective of an eco-system comprising of the person and related environmental influences rather than in silo. This distinguishes the Framework from the other existing models/frameworks which talk about the person and/or the workplace without taking into account the full range of ecological factors.

A structured approach to person-centred planning and support

The Framework also provides a systematic approach to improving person-centred job support and, in doing so, addresses another gap in the current disability employment landscape- which is a lack of a system to guide person-centred supports, accommodation and training in the workplace. A lack of systematic provision of these factors appears to hinder a person with disability in terms of sustaining in the job (WHO, 2011). While it is understood that person-centred planning is a best-practice enabler for improved QoL outcomes for persons with disabilities, there is a lack of a framework to inform how this should be incorporated within the job placement and job support process for job coaches and employers to implement it effectively in the work setting prior, during and after placement on the job. Further, person-centred approach is subjective and hence it needs to be tagged to an outcome for it to be assessed in an objective manner. The Framework has identified the person-related factors that are important and need to be assessed with regards to achieving a tangible outcome of the person maintaining employment. The Framework also informs person-centred adoption of technology at the workplace that is catered to augment the strengths of the person and support in areas of needs. In the current global economic climate, the profile of jobs available for persons with disabilities appear to be changing.

For example, in Singapore, there are more job opportunities in the creative arts industries such as music development, photography, and film. At the same time, traditional industries which have employed persons with disabilities appear to be waning with reduced demand due to COVID-19 and increased automation in some job roles, such as. Food and Beverage, Hotel, Retail. As such, job coaches need to explore new job opportunities in emerging industries. In doing so, the person-centred

augmentation of technology in workplaces to value-add to the productivity of the employee with disability could be key.

Enabling the development of a data-informed person-job specific business case

A third value-add of the Framework at the practice and policy levels is that it will allow job coaches to present employers with a sound and sustainable business case of hiring and retaining a person with disability. This overcomes the current lack of importance given to presenting employers a business case in hiring and retaining persons with disabilities and relying heavily on corporate social responsibility and enforced policies such as 'quota-systems'. Literature has shown that people with disabilities make reliable employees and there are business benefits for hiring people with disabilities (Parmenter, 2011; Riches et al., 2016). As previously discussed, the Australian Chamber of Commerce and Industry (ACCI) also dispelled myths of hiring people with disabilities by highlighting that ongoing costs of hiring persons with disabilities are actually lower, that employees with disabilities tend to commit to the organization longer, that they help make the workplace culture more inclusive and diverse (ACCI, 2012).

However, the current job placement and job support processes lack emphasis on presenting a sound business case for an employer to hire and/or retain a particular person with disability. Part of the pre-placement assessment and planning needs to involve the development of a sound and sustainable business case for hiring the person with disability. The issue is that employers do not often know the level of support and accommodation that a person with disability needs for a specific job, given the heterogeneity of person-job fit. In informing job coaches and employers of

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the sustainability factors at the mesosystem (workplace supports related) and exosystem (organization related) levels, it becomes possible for employers to understand from the onset what the cost will be to them to support a particular person with disability in a specific job. In doing so, job coaches will be able to present an objective yet balanced picture of the value the person brings (strengths-based approach) and the cost that the employer should be willing to incur to reap that value. Further, job coaches will be able to present a case to employers on how cost can be reduced by avoiding the need hire replacement workers.

Although corporate social responsibility is advocated in most established and large companies, the absence of a jointly developed business plan that is committed to by all parties- person, caregiver, job coach and employer, would risk the placement being just a 'tick' off the checklist that the company has hired a person with disability and met the 'quota' for corporate social responsibility. The Framework provides a systematic and evidence-based approach to helping job coaches and employers develop a business case for each prospective employee with disability in relation to the specific job he/she is being considered for.

Fostering resilience to the disability employment landscape and riding global challenges

Additionally, the Framework is also pertinent given the changing job landscape due to global factors such as COVID-19 or the financial crisis which may alter the profile of jobs available to persons with disabilities. The Framework has the potential to inform businesses and employers on how they can build their capacity to keep their employees with disabilities employed in the light of economic recession or health pandemics. The present COVID-19 global pandemic is bound to have an

impact on disability employment, with likelihood of people with disabilities falling out from their jobs being elevated as businesses and companies feel the strain of a drastic drop in business and impending recession. For example, in Singapore, a job support agency mentioned that 3 out of 103 of their clients that they support in OE have lost their jobs over the last two months, with a further 72% facing uncertain futures on their jobs when the pandemic situation eases (J. Shen, personal communication, 15 August 2020). Although this is by no means published data, it does point to the fragile prospects for persons with disabilities when it comes to holding on to their jobs in the open labour market. Hence, from a strategic perspective, the Framework could potentially allow employers, policy makers, job support agencies, families and persons with disabilities themselves to take reference from and implement policies, systems, practices and supports. This could possibly allow disability OE to build sufficient resilience to global issues such as health pandemics and economic recessions.

A reference point for employers from different industries

The Framework has the potential to inform sustainable OE across a range of industries and size of companies. This overcomes another gap in the current disability employment landscape, which is a lack of a common reference point for employers and job placement/job support agencies when placing persons with disabilities, regardless of industry type and company profile/size. For example, in Singapore, despite more companies willing to hire people with disabilities, there are still challenges when it comes to job sustainability across different job industries and company profiles. According to Society for the Physically Disabled (SPD), small and medium enterprises make up the majority of the companies in Singapore which offered employment to these people (Hrinasia, 2016). Hence, the Framework may

provide an understanding of what are the exact enablers and barriers to people with disabilities being offered sustainable employment by bigger companies vis-à-vis smaller ones. This would be crucial to drastically increasing the employment rate of persons with disabilities as bigger companies potentially have more job places available compared to small and medium enterprises.

Applicability to different disability sub-types

Additionally, the Framework has the potential of catering to all employers. It allows them to refer to the Framework to be informed of policies and practices to be put in place or transformed for employment sustainability for employees with disabilities, regardless of the specific disability type of the prospective employee. Often, policies at an organizational level and even national level do not distinguish between disability subtypes, but yet it is understood that different disability groups present with unique needs and need to be supported in a person-centred manner to optimise chances of maintaining employment. Because the existing policies, schemes and legislation do not distinguish between disability types, organisations who employ people with different disability types find it a challenge to plan and implement supports that are person-centred, regardless of the type of disability. Although further strengthening needs to be carried out to have greater representation from the physically disabled and Autism groups, this Framework goes some way to being generalizable to people with different levels of intellectual disability, autism and physical disability. This overcomes the gaps of existing models of disability open employment, have been developed for a particular disability type. For example, the benchwork model and the transition models targeted specifically for moderate to severe intellectual disabilities (Botterbusch, 1989; Wehman et al., 1985). Similarly, the Individual Placement and Support Model was developed for persons with

intellectual and developmental disabilities but ended up being researched on more for its use for supporting people with mental illness in open employment (Becker et al., 2012). Further, the train-and-place model is often more applicable to people with physical impairments (Lattimore et al., 2006; Nøkleby et al., 2017). Hence, the Framework can provide support to employers who wish to understand how to provide more sustainable employment to persons with different disability types.

Alignment to QoL and Independent Living

Beyer et al., (2010) found that supported employment contributes to constructive occupation and, hence, enhanced QoL to people with intellectual disabilities. The Framework supports this with QoL being identified as an outcome of sustainable employment. Beyer et al., (2010) had also pointed out previously that the quality of job finding and workplace support and the training provided are still critical to close the gap with respect to non-disabled co-workers on objective QoL measures. In this respect, the Framework value-adds by informing the specific person-related attributes as well as the other ecological factors that are required to be assessed and optimised to improve job sustainability. Improved employment outcomes are associated with greater independence (Ross, Marcell, Williams & Carlson, 2013) and both of these are important facets of QoL (Werner, 2012).

Support for the further development of a diagnostic tool to assess job sustainability

Next, the Framework lends support to the further development of a diagnostic tool based on the Framework to predict success of job placement by proactively assessing factors contributing to person-job sustainability. This potential tool will further enhance the Framework by facilitating its translation into practice and service

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delivery. In allowing the assessment of the sustainability factors specific to the job and the ecosystem around the person, it allows for systematic introduction and enhancement of supports and accommodation in order to bring about the optimal employment outcomes.

Factor analysis of the 55-item survey in this study yielded four factors which mirrored four of the sustainability categories in the framework- person-related factors, caregiver/family related factors (microsystem-level), work-setting related factors (mesosystem-level) and employer-related factors (exosystem-level). Initial findings from this study indicated promising psychometric properties of the survey. Further, it also showed that the four categories of sustainability factors were, collectively, able to differentiate between successful and unsuccessful OE as well as predict OE outcome reasonably well. In summary, the survey data analyses demonstrated the promise it has in developing a diagnostic tool using the four categories of sustainability factors to differentiate employment outcomes and hence predict job sustainability and success.

This reinforces the value of developing such a tool that can be used by job coaches and employers to apply the employment sustainability Framework in a translatable and concrete manner. This could be done by allowing job coaches to assess the degree of application of the sustainability factors as well as pre-emptively determine risk of fall-out of a specific person with disability on a specific job. It is important to systematically identify risk factors of dropping out and accordingly informing support needs in line with the areas of high-risk. This then would allow job coaches and employers to co-develop and implement additional support structures with job coaches as well as make necessary systemic and process changes to retain their employees with disabilities. Specifically, it can inform employers the type of

accommodation, modifications and support they need to provide to the person with disability in order to increase chances of employment success for that particular employee with disability. However, this needs to be guarded against the reverse situation where risk is avoided altogether and too much caution is placed that restricts placement opportunities for persons with disabilities. Hence, there needs to be a balance in terms of optimising sustainability and giving the person an opportunity to try out an available job that is of interest to him or her. One option is to establish a risk enablement culture and measures where efforts are important not to avoid risk, but provide necessary supports to overcome the barriers (Stirk & Sanderson, 2012) Nonetheless, to establish fidelity, further testing may be required in the development of the tool involving larger numbers across different disability types.

Enabling self-advocacy to take place in the workplace

Finally, the Framework has provided a platform to facilitate self-advocacy in employment as it highlights self-determination in the workplace as an important factor for sustainable and successful employment. Self-advocacy has been important to the overall QoL of a person with disability as well as in employment outcomes (Sharma, Singh & Kutty, 2006; Wehmeyer, 1994;). Using the Framework, persons with disabilities, supported by disability support agencies and the other aspects of the 'ecosystem of support', would be able to advocate for the rights and aspirations prior to placement and in the course of their employment journey.

Policy implications

The Framework also presents a holistic picture for policy makers and government agencies to critically analyse the macrosystem-level gaps that exist in disability

employment policies, legislation, schemes and support funding models. The Framework has postulated that these macrosystem-level factors need to be developed and/or reviewed to support and reinforce the sustainability factors at the lower levels of the Framework. For example, in Singapore, there are the 'job-redesign' fund and 'Tech-Able' fund from the government that employers can tap on to support their employees with disabilities with view to increasing opportunities and job retention. However, there is no structured support for employers to inform them how to re-design jobs or incorporate technology in the most effective and person-centred way. This then leads to a potentially excellent funding model being less effectively utilised.

Similarly, in countries such as Japan, there is a quota-system in place so that organisations are enforced to employ their fair share of persons with disabilities. However, the policy needs to be complemented with an evidence-based and structured support for employers and employees with disabilities so that employment in the open labour market is sustainable. This Framework does go some way to informing employers of the type and extent of support that needs to be in place for the person with disability to succeed in the job.

Thirdly, the Framework allows recommendations to be proposed at the macrosystem level in terms of policy to support the 'ecosystem' instead of silo..i.e policies/schemes that support the person-family-employer as an ecosystem rather than in a segregated manner. For example, it highlights the possible utility of a funded service at the government level to link support agencies with employers and persons with disabilities and their families so that support plans are holistic and address both short term and long term goals for the person.

Strengths of the study

The study has culminated in a resolution to both its aims. The conceptual model in chapter two formed the theoretical basis for the development of the sustainability Framework. The results of the study supported the conceptual model, which suggests that the sustainability factors in the Framework are supported by the ecological systems theory (Bronfenbrenner, 1977, 1979) as well as the independent living model of disability (Pfeiffer, 2002). This then haas informed a more practical, systematic and holistic 'ecosystem of supports' for persons with disabilities in the open labour market. Further, the feasibility of the development of a diagnostic tool to assess job sustainability suggests that further development of such a tool would enable proactive and objective decision making by job coaches and employers on job placements to optimise sustainability and success. As such, the study has provided important implications for future research through further testing of the Framework and further development and testing of the assessment process.

The mixed method approach undertaken in the study was also important in providing the rigour in understanding the employment success factors. It allowed subjective experiences of important stakeholders in the ecosystem of disability employment to be sought through interviews as well as tested the validity, reliability and generalizability through surveys done by job coaches.

Limitations of the study

The interviews and survey components of the study both had representations of persons with intellectual and physical disabilities as well as autism. However, the main limitation of the study remains that the intellectual disability numbers far outweighed the other disability groups. This leaves more to be done to establish the

generalizability of the framework with the under-represented groups- physical, sensory disabilities and Autism Spectrum Disorder (ASD), by replicating it with a more representative sample.

Secondly, the survey needed to emphasise the role of the job coach. Studies have shown that coaching strategies like verbal coaching, modelling and a customised approach emphasising autonomy are important in successful employment (Belknap, Korwin & Long, 1995; Shaw, Hong, Pransky & Loisel, 2008). Hence, while the Framework does cover the importance of employers and caregivers working closely with the job coach in the development and implementation of worksite supports and accommodations, it will be useful to identify job coach related factors that contribute to job sustainability. For example, critical competencies that job coaches need to have to support people on the job need to be identified and assessed as part of the framework.

Thirdly, the sample of participants in the interviews (persons with disabilities, caregivers and employers) as well as the survey (job coaches) were only from Singapore and this raises the question of cultural validity. While Singapore is considered a developed nation-state, there are still cultural, economic and societal differences with other developed countries. Further, in order for the Framework to have optimal impact to the lives of persons with disabilities internationally, it needs to also be replicated in developing or 'low income' countries. Evidence suggests that the disability employment prospects tend to be worse off in developing countries (Parmenter, 2011). Hence, with further investigation, the Framework might be extended further to include other sustainability factors that are more unique to the country's societal and cultural norms as well as employment landscape. For

example, when low-income countries are concerned, economic issues will need to be addressed as part of the macrosystem level in the framework.

Conclusion

The study examined current disability employment gaps and barriers towards maintaining a job, facilitating independence and enhancing overall QoL. In line with this, a Framework for sustainable and successful open employment for persons with disabilities was developed that is based on the independent living model of disability as well as Bronfenbrenner 's (1977, 1979) ecological systems theory. It has been underpinned by concepts such as the UNCRPD and ICF, as well as best practice enablers such as active support, evidence-based practice and transition planning. In having the person in the centre of the Framework, it looked at factors intrinsic to the person that contributes to maintaining employment. However, the value-add to existing knowledge is that it has also identified sustainability factors at the different levels of the environment- microsystem, mesosystem, exosystem and macrosystem. Another distinctive value-add is that the Framework impacts at the practice, research and policy levels given how it is structured. Hence, it has potential to inform improvements at various levels. These include improving job coaches' service delivery, improving employers' workplace practices and organisational policies, improving caregiver support as well as improving national policies, schemes, legislation and funding models. Collectively, these improvements would enhance employment outcomes for persons with disabilities internationally. Finally, the study has successfully demonstrated the feasibility for the further development of a diagnostic tool to assess job sustainability in the open labour market. This tool could potentially further enhance the Framework and facilitate its translation into practice and service delivery.

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Appendix One

Ethics approval

THE UNIVERSITY OF SYDNEY

Research Integrity & Ethics Administration
HUMAN RESEARCH ETHICS COMMITTEE

Friday, 30 November 2018

Em Prof Trevor Parmenter
Northern Clinical School: Medicine; Faculty of Medicine and Health
Email: trevor.parmenter@sydney.edu.au

Dear Trevor,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

Project No.:	**2018/813**
Project Title:	**Development of the 'Open Employment (OE) Sustainability Screening Instrument' for People with Disabilities**
Authorised Personnel:	**Parmenter Trevor; Riches Vivienne; Manokara Vimallan;**
Approval Period:	30/11/2018 to 30/11/2022
First Annual Report Due:	30/11/2019

Documents Approved:

Date	Type	Document
31/08/2018	Version 1	Survey questionnaire
16/09/2018	Version 1	Sample semi-structured interview questions for person
16/09/2018	Version 1	Sample semi-structured interview questions for manager
16/09/2018	Version 1	Sample semi-structured interview questions for caregiver
16/09/2018	Version 1	Sample e-mail to job support agency
18/11/2018	Version 2	PIS for job coach_version 2
18/11/2018	Version 2	Informed consent form for person with disability_revised
18/11/2018	Version 2	Informed consent form for caregiver_version 2
18/11/2018	Version 2	Informed consent form for employer_version 2
18/11/2018	Version 2	Informed consent form for job coach_version 2
18/11/2018	Version 2	PIS for person with disability_version 2
18/11/2018	Version 2	PIS for caregiver_version 2
18/11/2018	Version 2	PIS for employer_version 2

Condition/s of Approval

- Research must be conducted according to the approved proposal.

- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.

- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - ➢ Serious or unexpected adverse events (which should be reported within 72 hours).
  - ➢ Unforeseen events that might affect continued ethical acceptability of the project.

- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).

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Appendix Two

Example of use of thematic analysis to code and extract themes and sub-themes from interview data

Thematic analysis, based on the six steps described by Braun and Clarke (2006) and corresponding with Boyatzis (1998), was used. Thematic analysis allows flexibility, provides a rich account of phenomena (Braun & Clarke, 2006), and is of particular use within early stages of research (Boyatzis, 1998). Interviews were transcribed. The primary researcher did the first round of coding and the analysis process was then peer-reviewed by a secondary researcher. Differences were resolved via discussion. The code list was expanded until all the transcripts were covered. Data saturation was reached when no new themes were revealed during the interview. Common themes and sub-themes within each group were identified and reviewed by the advisory group.

Table 1 shows the Themes and Sub-themes as well as the number of comments from Person P1's transcript excerpt that aligned to each sub-theme and theme.

Table 1. Comments from Person P1's aligned to Themes and Sub-themes after coding

Themes	Sub-themes	Number of Comments from Person P1
1. Personal Characteristics (T1)	Fit between person's interest and job (T1a)	2
	Fit between support needs of person and support provided on the job (T1b)	11
	Personal attributes of person with disability (T1c)	2
	Person's own motivation to succeed on the job (T1d)	5
	Total for Theme 1: 20	
2. Workplace characteristics (T2)	Clear career progression pathways (T2a)	1
	Extent of inclusiveness in workplace (T2b)	3
	Extent of personalised work accommodation (T2c)	1
	Continual training and evaluation (T2d)	1
	Organisational policies supporting person with disability (T2e)	0

	Quality of communication with person with disability in workplace (T2f)	7
	Work tasks (T2g)	8
	Total for Theme 2: 21	

3. Employer/Supervisor characteristics (T3)	Employer's sense of social responsibility (T3a)	2
	Role of supervisor/manager in supporting person with disability (T3b)	16
	Total for Theme 3: 18	

4. Caregiver characteristics (T4)	Active caregiver support (T4a)	0
	Caregiver belief that child can succeed in the job (T4b)	0
	Caregiver belief that employer is committed to supporting child on the job (T4c)	0
	Caregiver attitude towards work tasks and work safety (T4d)	0
	Caregiver attitude towards workplace inclusiveness, autonomy and choice (T4e)	0
	Caregiver perceived competency in supporting person on the job (T4f)	0
	Caregiver perception on quality of relationship with child (T4g)	0
	Total for Theme 4: 0	

Extract of transcript from 'Person P1' with Theme and sub-theme codes

…I learn a lot of things **(T1a).** I try my best to working very hard **(T1c, T1d).** Help customer to find the size. Customer ask me can you help me find the size, I go and take. I also do cleaning..clean the mirror also **(T2g).** I also do delivery..scan the boxes **(T2g).** I also very happy my boss..my boss also very happy with me. I always try my best **(T1d).** Every morning I help open the shop 10 o'clock for customer **(T2g).** ..after that I very happy. I have been working for 5 years in this job. I try my best to working **(T1d).**

I have good colleagues..I have a lot of friends. My friends say Jason try your best..don't give up. And my boss also..he also say try your best...he also helpful **(T1b, T3b).**

I like everything about my job **(T1a)**...but sometime a lot of things to run..my boss say come and help then I must run here, run there...put back shirt..put back pants. Sometimes very tired then a lot of customer must change, put back, throw..everything throw..all mess up...I also feel abit angry why customer throw like that..can put nicely in fitting room. I take myself put in basket and hang again **(T2g).** Customer sometimes bring water and food in..sometimes the biscuit drop..I also feel like angry..I feel why you must eat until drop like that...inside cannot eat. I tell my boss the floor is dirty and I help you clean up. My boss very happy when I say that.

Customer say sorry when they drop food. I never say anything when they drop.I feel angry but I just keep quiet and clean the mess. I don't complain..just do my work **(T1c).** My manager see and say help to clean...after clean he say thank you for helping **(T3b).**

I got a lot of supervisors. I report to both manager and all supervisors. Sometime supervisor say cannot take off. I very sad cannot take off. I try to talk to him nicely and then he give me off day **(T1b, T3b).** I say today I need to go somewhere can I take off..he say okay. My supervisor is also very happy with me. My supervisor also help me to do work **(T1b, T3b).** He also help me working thing **(T3b)** and tell me Jason good job..try harder **(T1b).** I also say thank you to them for helping me. I like last time supervisor better than now. I do not know the new supervisor as well as the old one. Last time my supervisor not so busy..now so busy must do more things. Last time supervisor also help me more...and talk to me more..talk to me nicely. Now supervisor talk to me abit only..only ask me do work but help so much **(T3b, T2f)**...talk to me about work.

I want to work here very long time. I want to be supervisor so I can take care of others **(T1d).** Last time store is small..now very big..very nice..so I like to work there **(T1d).** I like to work with my colleague. My colleagues are very nice. They talk to me and help me **(T1b, T2f, T3b).** Sometimes I don't know something they help me **(T1b, T3b).** Got a bit of colleagues who I don't like so much. I saw one customer like very angry so I try to find size for customer **(T2g).** I say I go inside to find the size but I take very long. I go lunch with colleagues only sometimes **(T1b, T2b)**..sometimes alone. I like to go lunch with my friends more often. I feel happy because last time I won best customer service award 2 times **(T3a).** And award for best attendance 2

times also **(T3a).** My manager give me...I very happy. When manager, supervisor say good job, well done **(T3b)..**I say thank you. I do better in my job because they appreciate me **(T3b).** Manager always tell me..Jason if you need anything you can ask me **(T1b, T2f, T3b).**

Every day I just start my work on my own..clear rubbish..bring out the things. Every morning, I report to my supervisor and he tells me what to do **(T2f, T3b).** Every time I finish each work, I go to supervisor and he tells me what to do next **(T2f, T3b).** When I do not know something, I go to my colleague or supervisor to help me..they will help me **(T1b, T3b).** Everyday I do the same thing...cleaning then throw rubbish then delivery then throw boxes **(T2g).** I ask my manager can I go to break, he say can...I check my schedule..the paper **(T2g).** The manager do schedule on the paper **(T3b)** every morning..I go and check and then ask him is it my break can i go now..he say can go. I ask permission **(T1c, T2f).**

I want to get promoted so get extra money..save more money **(T1d).** I want to have a girlfriend...so I want more money. I have spoken to my aunty about this..she is okay and support me but I must earn more money first. My manager said if I continue to learn more and work hard I can be promoted next time **(T2a).**

First time I come here my manager, colleague and supervisor all teach me how to do the things **(T1b, T2d)...**unpacking, throwing rubbish, tidy stock room...all talk to me **(T2f)** and help me...Teach me in the store room for 1 to 2 weeks first..once okay then manager tell me Jason you now can work outside store room **(T2b, T2g)**...I got mentor to help me outside..also Jaieden (job coach) also come see me at my work place many times **(T1b, T2c, T3b)..**tell me try my best..I felt happy and easy for me to work **(T1a)**. I think I am good at what I do and I am happy because they like my work **(T2b).**

Last time, I only clean headset in WEDC..no packing work..I learn packing in Uniqlo….

Appendix Three

Factors, items that loaded on each and their factor loadings as well as the internal consistencies of each factor Rotated component loadings

	Factor			
Item	1	2	3	4
1) There are clear career progression pathways in the workplace for the person.	.567	.381		
2) There is inclusion in the work setting and daily work processes (e.g. person with disability is included in staff meetings, they are consulted and their needs are taken into account in processes).	.619			
3) The policies in place in the workplace are fair and inclusive (e.g. HR processes such as benefits, compensation, training opportunities, welfare).	.552	.360		
4) Employer uses a strengths-based approach when supporting person with disability.	.590			
5) Work accommodation is personalised according to the individual needs of the person with disability.	.533			.311
6) There is a good fit between the support needs of the person with disability and the support provided.	.712			
7) There is sufficient task modification where necessary.	.497			.319
8) Pace of training at the work site is customised to person (e.g. on-the-job training is given according to level of understanding/ability of each person rather than the same for every person with disability).	.730			.319
9) There is continual training and evaluation processes (e.g. on-the-job training is continual rather than for a fixed period of time before ceasing completely).	.701			

10) Degree and type of training and support is personalised according to support needs of person with disability (e.g. the way the on-the-job training and support is delivered for the person in the workplace is customised for based on the unique support needs of the person).	.598
11) *There is regular review of the work performance by the employer.	.684
12) Employer's policies support persons with disabilities.	.662
13) Training is given to organisation's staff on supporting persons with disabilities (e.g. colleagues, supervisors and managers are trained to support person with disabilities).	.640
14) There is continual feedback exchange between management, direct supervisors and peers on supporting persons with disabilities.	.639
15) There is regular review of organisational policies by the employer to better support persons with disabilities.	.636
16) Organisation has plans to hire more persons with disabilities.	.617
17) Employer has a sense of social responsibility in hiring and retaining persons with disabilities.	.673
18) There is good quality of communication in the workplace between person with disability, his/her colleagues, supervisor(s) and manager(s).	.675
19) Person with disability has a good working relationship with manager, supervisor and peers.	.620
20) Multiple learning modes are used in the workplace to train and support person with disability.	.602

Item		
21) There is a high degree of appreciation and encouragement given to person with disability by manager.	.747	
22) There is a high degree of appreciation and encouragement given to person with disability by supervisor(s)	.733	
23) There is a high degree of appreciation and encouragement given to person with disability by colleagues in the workplace.	.615	
24) Manager understands his/her role in supporting person with disability.	.651	
25) Supervisor understands his/her role in supporting person with disability.	.666	
26) Employer works closely with job coach in supporting person with disability throughout the job placement.	.516	
27) Manager is directly involved in supporting person with disability throughout the job placement.	.703	
28) Manager advocates for inclusive practices in the workplaces.	.666	
29) There is lower expectation placed on the person with disability compared with other employees.		.573
30) There is flexibility and adaptability from managers and supervisors in their expectations of the person with disability.	.581	.581
31) Supervisors take initiative in providing support to the person with disability (e.g. support is given early on rather than wait for the situation to worsen or for the person to ask for help).	.555	
32) Caregiver is actively involved in supporting person with disability on the job.		.760

33) Caregiver is confident of supporting person so that the person can sustain in the job.	.305	.805	
34) Caregiver works closely with job coaches throughout job placement.		.788	
35) Caregiver engages in goal-setting process with person with disability (e.g. caregiver discusses with person on planning steps to take in order to sustain the job).		.764	
36) Caregiver believes that person with disability will succeed in the job.	.426	.686	
37) Caregiver believes that employer will support person with disability.		.702	.485
38) Caregiver believes that work tasks are suitable for person with disability.		.772	.372
39) Caregiver believes that work setting is safe and conducive for person with disability.		.712	.371
40) Caregiver believes that employer is inclusive in organisational processes and policies.		.703	.443
41) Caregiver has a good quality relationship with person with disability.		.603	
42) Person with disability has high motivation to succeed in the job.	.753		
43) Person with disability has high level of interest in work tasks.	.751		
44) Person with disability enjoys work environment.	.710		
45) Person with disability displays ability and maturity that is needed for the job.	.854		
46) Person with disability takes initiative on the job.	.780		
47) Person with disability regulates emotions appropriately.	.714		

48) Person with disability complies with rules and regulations in the work place.		.704	
49) Person with disability has good problem solving skills.		.733	
50) Person with disability responds appropriately to constructive criticism.		.615	
51) There is sufficient structure in work tasks.	.476		
52) Daily reminders and prompts are provided to person with disability on the job throughout placement.	.309		.403
53) The employer introduces new tasks to the person's work scope according to person's readiness, motivation and/or ability level (introduction on new work tasks is done gradually in a targetted and collaborative manner using a person-centred approach).	.624		
54) Person with disability has clear awareness of his/her role in the job throughout placement.	.395	.562	
55) Support for the person is on-going throughout the duration the person is on the job (e.g. the person receives as much support as he/she needs throughout the employment period).	.540		

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Appendix Four

Final Four Factor Structure

Construct/Items	M	SD	Loadings	Cronbach's alpha
A. Employer Characteristics	87.1	10.4		.954
1) There are clear career progression pathways in the workplace for the person.	2.56	.665	.567	
2) There is inclusion in the work setting and daily work processes (e.g. person with disability is included in staff meetings, they are consulted and their needs are taken into account in processes).	2.83	.648	.619	
3) The policies in place in the workplace are fair and inclusive (e.g. HR processes such as benefits, compensation, training opportunities, welfare).	3.10	.466	.552	
4) Employer uses a strengths-based approach when supporting person with disability.	3.10	.495	.590	
5) There is a good fit between the support needs of the person with disability and the support provided.	3.03	.428	.712	
6) There is continual training and evaluation processes (e.g. on-the-job training is continual rather than for a fixed period of time before ceasing completely).	2.95	.456	.701	
7) Degree and type of training and support is personalised according to support needs of person with disability (e.g. the way the on-the-job training and support is delivered for the person in the workplace is customised for based on the unique support needs of the person).	2.90	.447	.598	
8) There is regular review of the work performance by the employer.	2.90	.640	.684	
9) Employer's policies support persons with disabilities.	3.01	.449	.662	
10) Training is given to organisation's staff on supporting persons with disabilities (e.g. colleagues, supervisors and managers are trained to support person with disabilities).	2.51	.626	.640	
11) There is continual feedback exchange between management, direct supervisors and peers on supporting persons with disabilities.	2.93	.508	.639	

12) There is regular review of organisational policies by the employer to better support persons with disabilities.	2.55	.566	.636
13) Organisation has plans to hire more persons with disabilities.	2.95	.619	.617
14) Employer has a sense of social responsibility in hiring and retaining persons with disabilities.	3.13	.487	.673
15) There is good quality of communication in the workplace between person with disability, his/her colleagues, supervisor(s) and manager(s).	2.87	.585	.675
16) Person with disability has a good working relationship with manager, supervisor and peers.	3.01	.468	.620
17) Multiple learning modes are used in the workplace to train and support person with disability.	2.70	.562	.602
18) There is a high degree of appreciation and encouragement given to person with disability by manager.	2.92	.516	.747
19) There is a high degree of appreciation and encouragement given to person with disability by supervisor(s), manager(s).	2.86	.576	.733
20) There is a high degree of appreciation and encouragement given to person with disability by colleagues in the workplace.	2.87	.522	.615
21) Manager understands his/her role in supporting person with disability.	3.01	.487	.651
22) Supervisor understands his/her role in supporting person with disability.	3.00	.419	.666
23) Employer works closely with job coach in supporting person with disability throughout the job placement.	2.97	.569	.516
24) Manager is directly involved in supporting person with disability throughout the job placement.	2.82	.683	.703
25) Manager advocates for inclusive practices in the workplaces.	2.92	.516	.666
26) Supervisors take initiative in providing support to the person with disability (e.g. support is given early on rather than wait for the situation to worsen or for the person to ask for help).	2.97	.448	.555
27) There is sufficient structure in work tasks.	2.93	.391	.476
28) Daily reminders and prompts are provided to person with disability on the job throughout placement.	2.69	.552	.309
29) The employer introduces new tasks to the person's work scope according to	2.96	.427	.624

	Mean	SD	Loading	α
person's readiness, motivation and/or ability level (introduction on new work tasks is done gradually in a targetted and collaborative manner using a person-centred approach).				
30) Support for the person is on-going throughout the duration the person is on the job (e.g. the person receives as much support as he/she needs throughout the employment period).	3.19	.511	.540	
B. Person-related Characteristics	28.3	5.04		.933
1) Person with disability has high motivation to succeed in the job.	2.81	.674	.753	
2) Person with disability has high level of interest in work tasks.	2.90	.693	.751	
3) Person with disability enjoys work environment.	3.03	.687	.710	
4) Person with disability displays ability and maturity that is needed for the job.	2.85	.691	.854	
5) Person with disability takes initiative on the job.	2.80	.740	.780	
6) Person with disability regulates emotions appropriately.	2.69	.693	.714	
7) Person with disability complies with rules and regulations in the work place.	2.97	.504	.704	
8) Person with disability has good problem solving skills.	2.49	.654	.733	
9) Person with disability responds appropriately to constructive criticism.	2.70	.580	.615	
10) Person with disability has clear awareness of his/her role in the job throughout placement.	3.03	.362	.562	
C. Caregiver-related characteristics	28.2	5.24		.931
1) Caregiver is actively involved in supporting person with disability on the job.	2.77	.741	.760	
2) Caregiver is confident of supporting person so that the person can sustain in the job.	2.85	.691	.805	
3) Caregiver works closely with job coaches throughout job placement.	2.75	.736	.788	
4) Caregiver engages in goal-setting process with person with disability (e.g. caregiver discusses with person on planning steps to take in order to sustain the job).	2.49	.754	.764	
5) Caregiver believes that person with disability will succeed in the job.	2.84	.601	.686	
	2.85	.639	.702	

6) Caregiver believes that employer will support person with disability.	2.90	.612	.772	
7) Caregiver believes that work tasks are suitable for person with disability.	2.97	.591	.712	
8) Caregiver believes that work setting is safe and conducive for person with disability.	2.83	.620	.703	
9) Caregiver believes that employer is inclusive in organisational processes and policies.	2.97	.655	.603	
10) Caregiver has a good quality relationship with person with disability.				
D. Workplace Characteristics	14.7	1.74		.792
1) Work accommodation is personalised according to the individual needs of the person with disability.	3.00	.459	.311	
2) There is sufficient task modification where necessary.	2.92	.442	.319	
3) Pace of training at the work site is customised to person (e.g. on-the-job training is given according to level of understanding/ability of each person rather than the same for every person with disability).	3.00	.397	.319	
4) There is lower expectation placed on the person with disability compared with other employees.	2.76	.571	.573	
5) There is flexibility and adaptability from managers and supervisors in their expectations of the person with disability.	2.99	.468	.581	
Full survey	158.3	17.3		.957

Extraction method: Principal Axis Factoring

Rotation method; Varimax with Kaiser Normalisation

Results' support for conceptual model

Alignment of 'person-level characteristics' theme, related sub-themes and items from survey onto 'Person-level' component of conceptual model

Conceptual model component	Interview theme supporting person-level component of model	Interview sub-themes supporting person-level component of model	Survey items supporting person-level component of model
Person-level	Person-level characteristics	a) Fit between person's interest and job	1) Interest in work tasks and environment
		b) Fit between support needs of person and support provided on the job,	2) Ability to carry out job tasks
		c) Personal attributes of person with disability	3) Initiative on job, 4) emotional regulation, 5) compliance, 6) problem solving skills and 7) perceived clarity of job role,
		d) Person's own motivation to succeed on the job.	8) Motivation to succeed in job

Alignment of related theme, sub-themes and items from survey on 'microsystem' level component of conceptual model

Conceptual model component	Interview theme supporting microsystem component of model	Interview sub-themes supporting microsystem component of model	Survey items supporting microsystem component of model
Microsystem level	Caregiver-related characteristics	a) Active caregiver support	1) Caregiver engages in goal-setting process with person with disability, 2) Caregiver works closely with job coaches throughout job placement, 3) Caregiver is actively involved in supporting person with disability on the job.
		b) Caregiver belief that child can succeed in the job	4) Caregiver believes that work tasks are suitable for person with disability, 5) Caregiver believes that person with disability will succeed in the job.
		c) Caregiver belief that employer is committed to supporting child on the job	6) Caregiver believes that employer will support person with disability.
		d) Caregiver attitude towards work tasks and work safety	7) Caregiver believes that work setting is safe and conducive for person with disability.
		e) Caregiver attitude towards workplace inclusiveness, autonomy and choice	8) Caregiver believes that employer is inclusive in organisational processes and policies,
		f) Caregiver perceived competency in supporting person on the job	9) Caregiver is confident of supporting person so that the person can sustain in the job,
		g) Caregiver perception on quality of relationship with child	10) Caregiver has a good quality relationship with person with disability.

Alignment of related theme, sub-themes and items from survey on 'mesosystem' level component of conceptual model

Conceptual model component	Interview theme supporting mesosystem component of model	Interview sub-themes supporting mesosystem component of model	Survey items supporting mesosystem component of model
	Workplace characteristics	a) Extent of personalised work accommodation	1) Work accommodation is personalised according to the individual needs of the person with disability, 2) There is a good fit between the support needs of the person with disability and the support provided, 3) Pace of training at the work site is customised to person', 4) Employer works closely with job coach in supporting person with disability throughout the job placement, 5) Support for the person is on-going throughout the duration the person is on the job
		b) Quality of communication with person with disability in workplace	6) There is good quality of communication in the workplace between person with disability, his/her colleagues, supervisor(s) and manager(s), 7) Person with disability has a good working relationship with manager, supervisor and peers, 8) There is a high degree of appreciation and encouragement given to person with disability by manager, 9) There is a high degree of

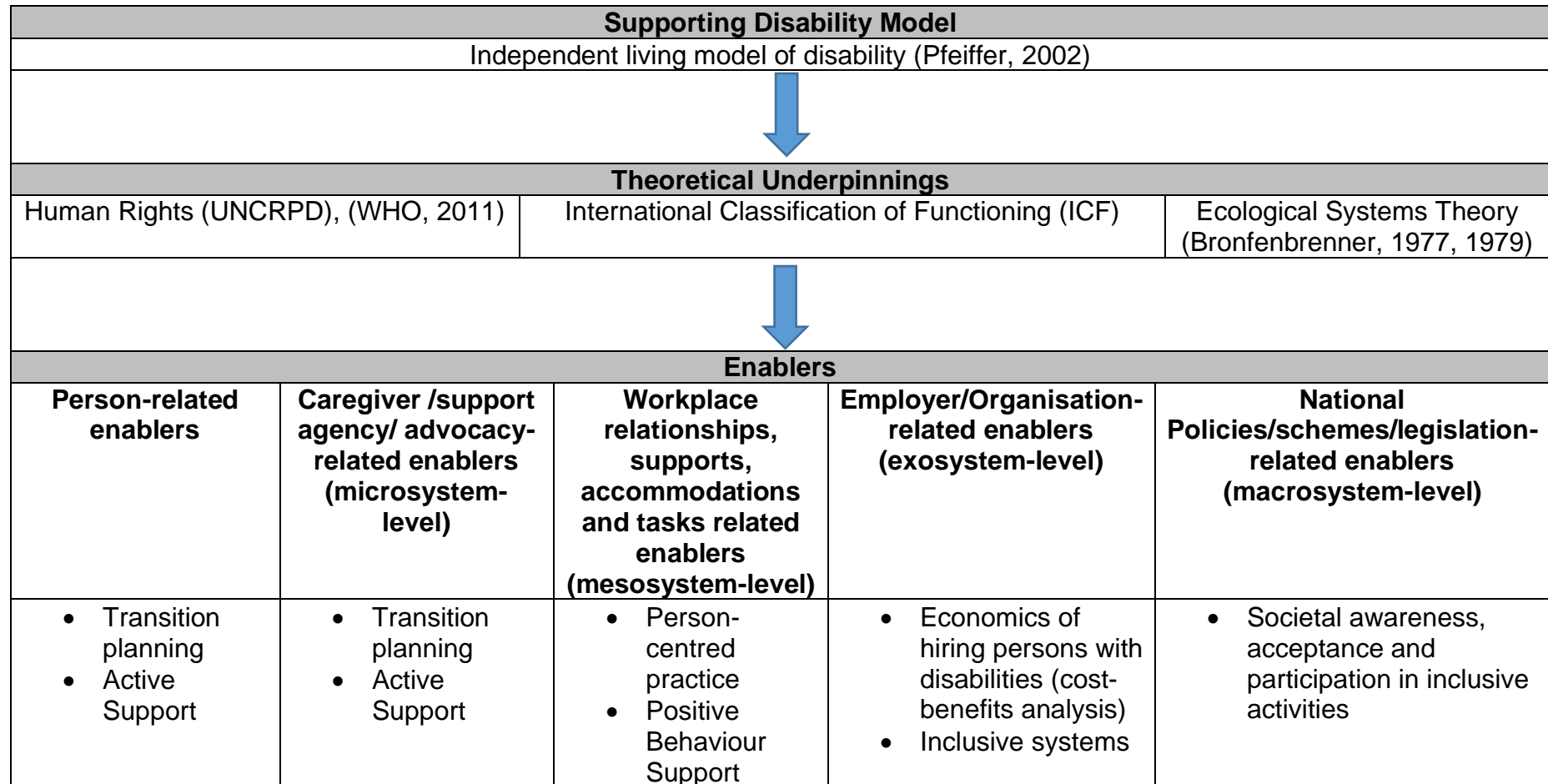|			appreciation and encouragement given to person with disability by supervisor(s), 10) There is a high degree of appreciation and encouragement given to person with disability by colleagues in the workplace, 11) Supervisors take initiative in providing support to the person with disability,
		c) Work tasks	12) There is sufficient task modification where necessary, 13) There is sufficient structure in work tasks, 14) Daily reminders and prompts are provided to person with disability on the job throughout placement, 15) The employer introduces new tasks to the person's work scope according to person's readiness, motivation and/or ability level

Alignment of related theme, sub-themes and items from survey on 'exosystem' level component of conceptual model

Conceptual model component	Interview theme supporting exosystem component of model	Interview sub-themes supporting exosystem component of model	Survey items supporting exosystem component of model
Exosystem level	Workplace characteristics	a) Clear career progression pathways	1) There are clear career progression pathways in the workplace for the person.
		b) Extent of inclusiveness in workplace	2) The policies in place in the workplace are fair and inclusive, 3) Employer uses a strengths-based approach when supporting person with disability, 4) Employer's policies support persons with disabilities
		c) Continual training and evaluation	5) Pace of training at the work site is customised to person, 6) There is continual training and evaluation processes, 7) Degree and type of training and support is personalised according to support needs of person with disability, 8) Multiple learning modes are used in the workplace to train and support person with disability, 9) There is inclusion in the work setting and daily work processes.
		d) Organisational policies supporting person with disability	10) Training is given to organisation's staff on supporting persons with disabilities, 11) There is regular review of organisational policies by the employer to better support persons with disabilities, 12 Organisation has plans to hire more persons with disabilities, 13) There is continual feedback exchange between management, direct supervisors and peers on supporting persons with disabilities,

			14) Manager understands his/her role in supporting person with disability, 15) Supervisor understands his/her role in supporting person with disability, 16) Manager is directly involved in supporting person with disability throughout the job placement, 17) Manager advocates for inclusive practices in the workplaces, 18) There is lower expectation placed on the person with disability compared with other employees, 19) There is flexibility and adaptability from managers and supervisors in their expectations of the person with disability
	Employer characteristics	e) Employer sense of social responsibility	20) Employer has a sense of social responsibility in hiring and retaining persons with disabilities.

Appendix Six

Detailed framework with expanded sustainability factors

Supporting Disability Model				
Independent living model of disability (Pfeiffer, 2002)				

(arrow)

Theoretical Underpinnings				
Human Rights (UNCRPD), (WHO, 2011)		International Classification of Functioning (ICF)		Ecological Systems Theory (Bronfenbrenner, 1977, 1979)

(arrow)

Enablers				
Person-related enablers	**Caregiver /support agency/ advocacy-related enablers (microsystem-level)**	**Workplace relationships, supports, accommodations and tasks related enablers (mesosystem-level)**	**Employer/Organisation-related enablers (exosystem-level)**	**National Policies/schemes/legislation-related enablers (macrosystem-level)**
• Transition planning • Active Support	• Transition planning • Active Support	• Person-centred practice • Positive Behaviour Support	• Economics of hiring persons with disabilities (cost-benefits analysis) • Inclusive systems	• Societal awareness, acceptance and participation in inclusive activities

• Evidence-based practice • Person-centred planning	• Positive Behaviour Support • Evidence-based practice • Person-centred planning	• Active Support • Technological innovation • Social relationships		

Sustainability factors				
Person-related factors	**Caregiver /support agency/ advocacy related factors (microsystem-level)**	**Workplace relationships, supports, accommodations and tasks related factors (mesosystem-level)**	**Employer/Organisation-related factors (exosystem-level)**	**National Policies/schemes/legislation related factors (macrosystem-level)**
1) Interest in work tasks and environment 2) Ability to carry out job tasks 3) Initiative on job 4) emotional regulation 5) compliance 6) problem solving skills and	1) Caregiver engages in goal-setting process with person with disability, 2) Caregiver works closely with job coaches throughout job placement, 3) Caregiver is actively involved in supporting person	1) Work accommodation is personalised according to the individual needs of the person with disability, 2) There is a good fit between the support needs of the person with disability and	1) There are clear career progression pathways in the workplace for the person. 2) The policies in place in the workplace are fair and inclusive, 3) Employer uses a strengths-based approach when supporting person with disability,	1) There are policies in place to support persons with disabilities to be given opportunities to find employment in the open labour market 2) Legislations are in place to mandate and protect the rights of persons with disabilities and promote inclusive employment practices

7) perceived clarity of job role 8) Motivation to succeed in job	with disability on the job. 4) Caregiver believes that work tasks are suitable for person with disability, 5) Caregiver believes that person with disability will succeed in the job. 6) Caregiver believes that employer will support person with disability. 7) Caregiver believes that work setting is safe and conducive for person with disability. 8) Caregiver believes that employer is inclusive in organisational processes and policies, 9) Caregiver is confident of supporting person so that the person can sustain in the job,	the support provided, 3) Pace of training at the work site is customised to person', 4) Employer works closely with job coach in supporting person with disability throughout the job placement, 5) Support for the person is on-going throughout the duration the person is on the job 6) There is good quality of communication in the workplace between person with disability, his/her colleagues, supervisor(s) and manager(s), 7) Person with disability has a good working relationship with manager, supervisor and peers,	4) Employer's policies support persons with disabilities 5) Pace of training at the work site is customised to person, 6) There is continual training and evaluation processes, 7) Degree and type of training and support is personalised according to support needs of person with disability, 8) Multiple learning modes are used in the workplace to train and support person with disability, 9) There is inclusion in the work setting and daily work processes. 10) Training is given to organisation's staff on supporting persons with disabilities, 11) There is regular review of organisational policies by the employer to better support persons with disabilities, 12) Organisation has	3) There are policies in place to support employers in retaining their employees with disabilities 4) There are schemes, grants or funds available and are being tapped on by employers and persons with disabilities to secure and sustain employment in the open labour market.

	10) Caregiver has a good quality relationship with person with disability.	8) There is a high degree of appreciation and encouragement given to person with disability by manager, 9) There is a high degree of appreciation and encouragement given to person with disability by supervisor(s), 10) There is a high degree of appreciation and encouragement given to person with disability by colleagues in the workplace, 11) Supervisors take initiative in providing support to the person with disability, 12) There is sufficient task modification where necessary, 13) There is	plans to hire more persons with disabilities, 13) There is continual feedback exchange between management, direct supervisors and peers on supporting persons with disabilities, 14) Manager understands his/her role in supporting person with disability, 15) Supervisor understands his/her role in supporting person with disability, 16) Manager is directly involved in supporting person with disability throughout the job placement, 17) Manager advocates for inclusive practices in the workplaces, 18) There is lower expectation placed on the person with disability compared with other employees, 19) There is flexibility and adaptability from managers and	

		sufficient structure in work tasks, 14) Daily reminders and prompts are provided to person with disability on the job throughout placement, 15) The employer introduces new tasks to the person's work scope according to person's readiness, motivation and/or ability level	supervisors in their expectations of the person with disability 20) Employer has a sense of social responsibility in hiring and retaining persons with disabilities.	

Outcomes		
Employment Sustainability	Independence	Overall QoL