Université de Montréal

Content development for a tool to assess the preparedness of employment environment to welcome people with visual impairment

Par
Tosin Omonye Ogedengbe
20205944

École d'optométrie

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Content development for a tool to assess the preparedness of employment environment to
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Présenté par

Tosin Omonye Ogedengbe

20205944

A été évalué par un jury composé des personnes suivantes

Judith Renuad

Président-rapporteur

Walter Wittich

Directeur de recherche

Mahadeo Sukhai

Codirecteur

Vanessa Bachir

Membre du jury

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Résumé

Le taux de chômage des personnes vivant avec une déficience visuelle (PDV) demeure préoccupant, malgré la mise en place de lois progressistes et d'actions diverses pour favoriser leur emploi. Les PDV éprouvent continuellement des difficultés d'intégration à l'emploi en raison de barrières dans le marché du travail et de l'inaccessibilité des lieux de travail.

L'objectif de ce mémoire était de développer le contenu d'un outil de mesure qui pourrait évaluer l'état de préparation des milieux de travail pour accueillir des PDV.

L'objectif a été atteint en deux temps. Premièrement, une synthèse de la littérature scientifique a permis de prendre la mesure des connaissances existantes et d'identifier les lacunes dans la recherche sur l'intégration à l'emploi. Deuxièmement, une étude co-créative a exploré les expériences vécues d'employés vivant avec une déficience visuelle et celles d'experts dans la création d'environnement de travail prêt à employer des PDV.

Les résultats indiquent que traditionnellement l'approche pour faciliter l'intégration à l'emploi des PDV visait l'identification d'obstacles et de facilitateurs à la réussite professionnelle. Cette approche axée sur l'individu, souhaitait préparer les PDV à l'emploi. Peu de recherches ont été menées sur les efforts déployés par les employeurs et sur l'environnement de travail. Même si le milieu de travail a été identifié comme facteur de réussite et comme barrière dans l'intégration en emploi, aucune approche n'existe pour préparer les employeurs à l'arrivée de PDV. L'atteinte d'une répartition équitable des efforts impliquant tous les déterminants dans la réussite passe inévitablement par la préparation des environnements d'emploi.

Mots-clés : déficience visuelle, basse vision, aveugle, emploi, environnement de travail, Préparation, accessibilité.

Abstract

The unemployment rate among people living with vision impairment (PVI) remains a significant concern, despite the implementation of progressive laws and various actions committed to promoting their employment. PVI continually experience difficulties in employment integration due to labor market barriers and inaccessible workplaces.

The objective of this master's thesis was to develop the content of a tool to access the preparedness of the employment environment to welcome PVI. This objective was accomplished across two phases as presented in this thesis. First, a scoping review synthesized existing knowledge and identified gaps in employment integration research. This knowledge informed the second phase, a co-creation study that explored the experiences of employees with vision impairment and employment domain experts in the creation of a work environment that is prepared to employ PVI. The findings indicate that previous attempts to facilitate the employment integration of PVI focused mainly on identifying barriers and facilitators to employment success. Furthermore, attempts to translate findings into employment integration plans focused on the individual perspective, making PVI employment ready. There has been little research into the efforts made by employers and their environments to achieve sustainable employment. Even though the employment environment was identified to contribute to employment success and lacking in the ability to ensure employment integration, no approach exists to prepare employers for the arrival of PVI. To achieve an equilibrium of effort among all the determinants of employment success, the preparedness of the employment environments must also be explored.

Keywords: visual impairment, low vision, blind, employment, employment environment, Preparedness, accessibility.

Acronyms and abbreviations

Acronyms/Abbreviation	Description
CNIB	Canadian National Institute for the Blind
CS	Contrast Sensitivity
EDE	Employment Domain expert
EVI	Employee with Visual Impairment
ICF	International Classification of Functioning
PVI	People with Vision Impairment.
VA	Visual Acuity
VF	Visual Field
VI	Visual Impairment

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Introduction

According to the International Classification of Functioning, Disability, and Health (ICF), disability is a complex concept with multiple dimensions. Disability refers to the impairments, limitations, and restrictions that people with a health condition face while interacting with their physical, social, or attitudinal environment. Disability is highly diverse; over 1 billion people globally and 100 million in the European Union (EU) live with a disability, with a worldwide projection of 2 billion in 2050 (1). There are roughly 4.4 million children and adults with disabilities in Canada. Between 2001 and 2006, the disability rate in the overall population in Canada increased from 12.4% to 14.3% due to aging. In 2017, one in five (22%) Canadians aged 15 years and over – or about 6.2 million individuals – had one or more disabilities. The prevalence of disability increased with age, from 13% for those aged 15 to 24 years to 47% for those aged 75 years and over, with visual impairment (VI) accounting for 5.4% of all cases of disability (2).

In the years ahead, disability will be of even more significant concern because its prevalence is on the rise. Across the world, people with disabilities have lower health outcomes, lower education achievements, less economic participation, and higher poverty rates than people without disabilities (3). As the level of disability severity increased, the likelihood of being employed decreased. Among individuals aged 25 to 64 years, 76% of those with mild disabilities were employed, whereas only 31% of those with very severe disabilities were employed (2). There is a likelihood that everyone experiences some form of temporary or permanent disability at some point in life.

Visual Disability

A person is said to have vision impairment when an eye condition affects any part of the visual system and one or more of its visual functions. Visual impairment can occur at any stage of life with varying degrees of impairment. The two most commonly used behavioural measures used to define visual impairment are visual acuity and visual field diameter. Visual acuity is a term used to define the clarity and sharpness of vision (4),. Distance vision impairments are classified as Mild with a visual acuity worse than 6/12 to 6/18; Moderate with a visual acuity worse than 6/18 to 6/60; Severe with a visual acuity worse than 6/60 to 3/60; and Blindness with a visual acuity worse than 3/60 (5). Visual field diameter describes the horizontal or vertical diameter of the residual visual field, for example, in persons with glaucoma or retinitis pigmentosa. Common

standards define low vision as 60 degrees residual visual field in the better eye with best correction, and legal blindness as a residual field of 10 degree is less (6).Most VI can be improved using corrective measures like spectacles or contact lenses, and some may require medical treatment or surgical interventions. While visual acuity in some other conditions can be resolved, some cannot be recovered entirely, even with these curative measures; this is the case in low vision or blindness. Hence the limitations and restrictions that someone with an eye condition face when performing daily activities or interacting with their physical, social, or attitudinal environment, is referred to as 'visual disability' (7).

Visual disability can also be measured using subjective self-report assessments of functional vision (8).Such tests exists as questionnaires that help people with vision impairment understand the total impact of their visual loss. They also steer rehabilitation recommendations through person-centered interventions and enable a focus on the specific needs of the individual (9). Ideally, both behavioural assessments and self-report are utilized in conjunction, providing eye care professionals and rehabilitation specialists with complementary information about the individual's ability to function with their visual impairment.

According to the World Report on Vision (5), there are 2.2 billion PVI, of the 8 billion people that comprise the global population. Globally the leading causes of visual impairment are age-related macular degeneration, cataract, diabetic retinopathy, glaucoma, and uncorrected refractive errors (5,10). Of the 2.2 billion PVI, 1 billion include those with moderate or severe distance vision impairment or blindness due to unaddressed refractive error (88.4 million), cataract (94 million), age-related macular degeneration (8 million), glaucoma (7.7 million), diabetic retinopathy (3.9 million), as well as near vision impairment caused by unaddressed presbyopia (826 million) (10).

The distribution of vision impairment and the associated burden is not equitable. Distribution varies by region and income level, age and gender, and area of residence. Regionally, the prevalence and cause of vision impairment in low- and middle-income areas is four times higher than in high-income regions (10). Cataracts and age-related macular degeneration (AMD) have been identified as high-priority leading causes of blindness in high-income countries (11). In contrast, cataracts and refractive error were the leading cause in low-income regions (12). Cataracts, visual pathway disease, and macular degeneration are Canada's leading causes of visual impairment (13,14). Population growth and aging can result in a higher prevalence of visual

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impairment (6). Hence, as the prevalence of visual impairment increases with age, and as populations across the globe age, the number of persons with low vision and blindness is expected to increase.

It is imperative to know that the overall quality of vision depends not only on visual acuity but also on the functional ability of vision. This functional ability considers the visual field (15), color vision (16), stereopsis (17) extraocular motility, contrast sensitivity (18), glare sensitivity, and night vision. The visual field (VF) is the entire area seen when the eye is fixated at a point. The presence of normal visual fields enables orientation mobility and helps while searching. Ocular conditions like glaucoma, retinitis pigmentosa, and many other neurological disorders present with a defect in the visual fields. This can be in the form of central scotomas and peripheral constrictions. Hence even with good visual acuity, a visual field defect would result in limitations-visual disability. Contrast sensitivity (CS) measures the ability to discern different luminance levels in a static image. Loss of contrast sensitivity caused by other ocular conditions will also affect the visual acuity (VA). People with low CS typically face difficulties viewing objects or print with low contrast. This difficulty can easily be remedied by increasing contrast so that seeing becomes more comfortable, for example, by placing white rice in a dark bowl. Stereopsis refers to the relative proximity of an object, i.e., the exact relationship of things or people in the environment in 3D space. Determining the relative location of things in an environment is the most challenging aspect of visual factors. Color vision is usually assessed to determine an individual's ability to distinguish colors. Color vision deficiency will prompt rehabilitation practice of high color contrast, luminance and tone contrast. Impaired night vision can be observed in those with retinal disorders, such as retinitis pigmentosa, and those with cataracts. For any of these difficulties, impairment in functional vision can be improved through rehabilitation, adaptation, or designing an ideal environment for PVI (19).

Impact of Vision Impairment.

The impact of visual impairments goes beyond affecting visual functions, as low vision and blindness affect the ability to carry out many activities of daily living. These include reading and driving, which play an essential role in maintaining independence and quality of life. Vision contributes to everyday activities and has its role in success at every stage of life - from education, friendship, socialization, and participation in the workforce to the economy and a sense of identity (7). Living with visual impairments consequently can result in dependence, increased risk of falling, fractures and other subsequent injury, mental health challenges, cognitive impairment, mortality (20), social isolation, and errors in drug self-administration (21). Historically, PVI fared poorly in educational attainment and labor market participation relative to people without disabilities (22).

Adults with vision impairment often have lower work participation and productivity and higher rates of depression and anxiety than the general population. The employment rate of persons with vision impairment varies globally (24% in Australia, 28% in Canada, 32% in New Zealand, and 44% in the U.S.) (7). In a national survey of US adults aged ≥20 years, the estimated prevalence of depression was higher among visually impaired adults (visual acuity <20/40 in the better eye) than among adults with normal visual acuity (10.7% *vs*. 6.8%) (23). An assessment of previous statistics by the American Community Survey shows that the employment rate among PVI barely changed from 43.1% in 2008 to 44.2% in 2017, compared to 77.8% in 2008, and 79.4% among people without disability. In Canada, the employment rate of the working-age adults with a seeing disability (25–64 years) is estimated at 54%; 6% were unemployed, and 40% were not in the labor force (24).

While several studies and reviews indicate that older PVI have poorer quality of life than same-aged people without, fewer studies are concerned with visual impairment and its consequences for young or middle-aged adults. In their research, Tore et al. (25) compared the quality of life across all age groups among PVI and the general population, showing that young and middle-aged PVI have low quality of life. This rate was associated with higher unemployment and loneliness compared to the general population (25). Younger people are generally expected to contribute to society, and PVI may experience vision loss as a more profound disruption of their lives than older people.

Furthermore, vision impairment and blindness cause a considerable economic burden for PVI, their caregivers, and society, which increases with the degree of visual impairment. The distribution of costs and the economic impact of visual impairment and blindness ranges from direct medical costs (from medical services and products), direct non-medical costs (assistive devices, home modification), indirect costs (from productivity loss, change or loss of employment, loss of income, premature mortality). Compared to all other cost categories, indirect costs due to productivity losses, lower employment rates, and losses of income for PVI and caregivers caused the highest economic burden (26). Visual impairment is also associated with an increased prevalence of high fatigue impact that largely determines the economic burden of visual impairment. The substantial costs of visual impairment and comorbid fatigue emphasize the need for patient-centered interventions to decrease its effect (27). The 2017 Global Burden of Disease (GBD) study ranked VI and blindness as the third cause among all impairments for years lived with disability, with a societal burden given its impact on employment, quality of life (QoL), and related caregiving requirement (1). Hence to address the vision needs of PVI, rehabilitation is of utmost importance to ensure optimal everyday functioning (1).

Rehabilitation and Accessibility

Rehabilitation is a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interactions with their environment. It helps people attain independence and reduce the burden of their health challenges. Despite its importance, about 2.4 billion people globally live with a health condition that could benefit from rehabilitation (3). The experiences of PVI depend on different factors, such as the availability of prevention and treatment interventions, access to vision rehabilitation (including assistive products and devices), and whether the person experiences problems with inaccessible buildings, transport, and information (5). Physical, social, and attitudinal environments affect PVI. They can further disable them or decrease their participation and inclusion. Therefore, vision rehabilitation, together with social support and environmental modifications, is vital to enhance the health, functioning, well-being, and participation in society of PVI.

Every case of vision loss (low vision or blindness) is different; vision rehabilitation has to be personalized to every individual situation, whatever the underlying pathology, since the consequences of visual impairment in daily life may vary widely. Patients with central scotoma

will experience trouble reading and performing activities requiring near vision. Peripheral field loss will instead cause difficulties in detecting obstacles during walking. Additionally, dark adaptation disorders may affect the ability to see at night and negatively impact gait. Therefore, vision rehabilitation, as a challenge to improve functional ability needs to be adapted to every patient situation (21).

Vision rehabilitation services are based on a multidisciplinary approach. This approach consists of assessing residual visual function with visual acuity, refraction, contrast sensitivity, visual field, reading speed, and reading distance, as well as functional vision impairments that can benefit from rehabilitation. It also includes eye disease education, counseling, essential skills for daily living, travel and mobility instruction, assistive technology services, and early intervention for children and their families. A specific rehabilitation program is proposed to the patient and adapted to the client's functional vision and abilities, taking into account reading, activities of daily living, communication, mobility, employment, hobbies, family, and living situation, independently of the underlying pathology (21,28).

Rehabilitation options can include vision enhancement such as the use of magnification, text-to-speech technology, or other assistive devices. Hence comprehensive vision rehabilitation services offer PVI the ability to gain greater control of their environment, which leads to greater self-confidence, lowered risk of depression and anxiety, and improved quality of life (29). Studies conducted to evaluate the effectiveness of vision rehabilitation services reported that significant main effects were found post-rehabilitation for the reading and accessing information and emotional well-being, irrespective of gender, cause of vision impairment, and geographical location (30).

Despite the benefit of vision rehabilitation, the awareness of vision rehabilitation services is considerably low, and this is closely associated with the level of education, diagnosis, race, acuity at the time of intervention, and living situation. Most individuals accessing these services were referred only when the vision had significantly deteriorated. Other reasons associated with the poor uptake of vision rehabilitation services were transportation, distance, and funding. The awareness of such programs and their importance remain barriers to vision rehabilitation services. (31). For successful rehabilitation, the accessibility initiative must consider external constraints, affordability, priorities, availability of technology, knowledge, and cultural difference (3). Thus, to create an enabling environment, there should be accessibility to buildings, services,

transportation, communication, and information. People with disabilities are not homogenous but individuals with different abilities and requirements. Thus, their needs and conditions are a priority to increase their inclusion in society, workplace, and educational settings.

Vocational Rehabilitation

Work has been identified as a means to ease the burden of vision impairment. In this regard, vocational rehabilitation serves as a means for persons with disabilities, including those with blindness and low vision, to meet their employment goals or access work (32). Individualized vocational rehabilitation services promote long-term career success for transition-age youth with visual impairments and blindness (33).

A study by Michele et al. (34) identified vocational rehabilitation as one of the variables associated with competitive employment outcomes for PVI, alongside educational qualification, previous work experience, and the relationship with a rehabilitation counselor. Since vocational rehabilitation aims to prepare PVI for employment, Shaw and Gold (35) developed a psychometric tool to assess preparedness for employment for persons who are blind or visually impaired. This tool was developed using literature reviews that have identified the factors that make the few percentages of PVI attain employment success. This tool, called the TAPE measure, has two sections: 1). The Demographic/Personal section- targets information relating to age, sex, income, health, employment status, vision level, educational level, and prior work experience. 2). The Item pool section- consists of 12 scales- seven scales relevant to everyone (Technology, Support, Disability, Work history, Communication, Upbringing, and Language), four scales specific to those searching for work (Looking for work, Networking, Job search strategy, Targeted Job Search), and one scale (Access and Support) relevant to those who are currently employed. These scales consist of different questions, each measured using a Likert scale. The cumulative scale value determines the employment preparedness of the visually impaired individual, with identified areas of strength and weakness.

This tool helps PVI tailor and improve their job market preparation according to the areas of their greatest needs. The effectiveness of this tool is evident in the pre-employment program at the *Centre de réadaptation Lethbridge-Layton-Mackay du CIUSSS du Centre-Ouest-de-l'Île-de-Montréal* (36). Hence with all the efforts in place to ensure that the visually impaired are prepared and well-suited for their job and workplace, it is of great necessity to assess the level of

preparedness of the employer and their environment to reward and welcome the effort of the visually impaired by creating a sustainable workplace. The objectives of the studies covered in this thesis was to co-create the content of a complementary tool to assess the preparedness of the employment environment to welcome PVI. This objective was achieved across two phases, the scoping review of literature for knowledge synthesis and a co-creation approach to develop a tool to assess the preparedness of the employment environment to welcome people with vision loss.

Article 1: Towards Identifying Gaps in Employment Integration for People Living with Vision Impairment: A Scoping Review (Submitted to the Journal of Work)

Tosin Ogedengbe, Mahadeo Sukhai, Walter Wittich.

Authors Contribution:

All authors contributed substantially to the conception and design. Tosin Ogedengbe was solely responsible for acquiring, analyzing, and interpreting data. She was responsible for drafting all documents needed for the research execution, from grant applications, proposals, and recruitment to the articles. Wittich and Sukhai revised all prepared documents critically for important intellectual content and approved the final version to be published.

ABSTRACT

Background: The jobless rate among persons living with vision impairment remains a significant concern, despite the implementation of progressive laws and various actions committed to promoting their employment. Persons living with vision impairment continually experience difficulties in employment integration due to labor market barriers and inaccessible workplaces.

Objective: To synthesize knowledge from existing studies on vision impairment and employment to understand what has been explored, and to identify the gaps in employment integration.

Method: A comprehensive search of six databases was conducted using index terms and keywords. Studies were screened at the title/abstract level and at full-text level using pre-set criteria. Only available peer-reviewed studies with a focus on employment and vision impairment were included, irrespective of location and publication year.

Result: Of 2264 studies screened, only 43 studies were eligible for review and data extraction. Using thematic analysis, 8 key themes emerged: social support, disability rights and service systems, transition strategies and challenges, career, employment integration, employment environment, adaptive potential, and employment sustainability. These studies considered the perspectives of persons with vision impairment, vocational rehabilitation, and the employment environment. Identified gaps include transition strategies, workplace participation, the perception of colleagues, and work evolution.

Conclusion: The primary focus of studies was on the individual factors that influence employment integration; environmental factors were not explored in depth. The need to examine the readiness of the work environment is of particular importance because environmental factors can be modified according to the functional needs of persons living with vision impairment.

Keywords: Blindness, Low vision, Work, Unemployment, Inclusion, Disability,

1.0. Introduction

We live in a world designed for the majority – the sighted individual; hence PVI face unfair conditions, including stigma, discrimination, poverty, and exclusion from education and employment, all of which have a negative impact on their health and quality of life. Inaccessible environments further influence impairment by creating barriers to participation and inclusion (3). There is a growing population of PVI (meaning low vision or blindness) that have acquired this impairment at different stages across their lifespan (37). Given that many of these individuals are working-age adults, employment rates among PVI hover around 26-39% compared to the sighted population, where this rate is estimated between 64-84% (7). The COVID-19 pandemic had a negative impact on the employment rate of PVI, causing a change in the type and quality of employment (38). Even though PVI can perform nearly all jobs, if given the right environment for productivity, their lower rate of labour market participation may explain why having a vision impairment often results in poverty.

Vocational Rehabilitation and Assistive devices

Vocational rehabilitation is a process that enables people with disabilities to secure, retain and advance in suitable employment and thereby furthers their integration or reintegration into society. Successful employment begins with matching labor supply and demand (39). Thus, supply has been the focus of vocational rehabilitation to help PVI develops skill sets, access the job market, and understand work culture. Vocational rehabilitation has been proven effective by providing on-the-job training (40), educating employers about vision impairment, and increasing contact between employers and individuals with vision impairments (41). However, on the demand side, human resources and hiring managers are not overly enthusiastic about people with disabilities as reliable and productive employees. Managers have also held neutral position about knowledge of the Americans with Disabilities Act (ADA), job accommodation and their company's effort to include people with disability (42).

Technology and assistive device

Recent extensive innovations in technology have created applications, devices, and systems that adapt workplace supports, educational access, and information systems to the needs of people with disabilities using assistive devices/ technology (43). Specifically, the accessibility features of mainstream devices have facilitated accessibility, and have reduced the potential effect of stigmatization when it comes to the use of assistive devices in public (44). Assistive technologies will continue to be a tool to affect their lives in ways not previously possible (45); opening opportunities to work and build a career in similar conditions to their counterparts without a disability. Furthermore, as the future of work continues to evolve due to the advancement of technology such as Artificial intelligence, there is a projection of marked labour market inequity such as a more rapid erosion of standard employment opportunities (e.g., full-time permanent jobs) and growth of non-traditional employment (e.g., freelancing, gig work) coupled with wage stagnation. Of concern, are the disadvantaged groups of workers, including people living with disabilities, may be particularly susceptible to disadvantage in the future of work. Hence Inclusive strategies are required for young people with disabilities within the future of work that provide protection from potential disruptions and can increase access to job opportunities (46). Accordingly, the implementation of the Accessible Canada Acts in 2019, with accessibility standard roadmap has the potential of greatly reducing address the impact of the technological advancement on PVI if well implemented across all sectors.

Employment and Vision impairment

The high jobless rate among people living with vision impairment is observed across countries, whereby, for example, Australia reports a full-time employment rate at 24 %, followed by Canada at 28 %, and New Zealand at 32 %; however, the full-time employment rate of the general population in some cases, is nearly double that of the sighted (47). Employment gives a framework to one's life, defines adulthood and social standing, and provides the opportunity to develop a positive identity as a valuable member of the workforce. Meanwhile, unemployment not only causes poverty but also correlates with other socially, emotionally, and psychologically adverse effects and generally low quality of life (48). For people living with vision impairment, employment is significant because having a disability often means being socially isolated (49), and being employed is one opportunity to reduce this isolation. It is therefore not surprising that

employment is a crucial aspect of the social participation of persons with vision impairment, and several employment policies and programs target inclusion in the labor market (48). Employment of PVI depends on factors that could either hinder or facilitate their participation. The presence of discrimination, negative attitudes and lack of services mainly in health and transport were major barriers within the environment whilst personals factors included the lack of educational qualifications and skills (50,51). Furthermore, people who had early onset of vision loss experienced more barriers (51).

At a time of labour shortages, it remains difficult for PVI to integrate into the job market. Therefore, it is time to take a fresh look at the approaches that have been studied when it comes to vision impairment and employment, and to identify gaps that need to be filled to overcome remaining barriers. Therefore, we present the results of a scoping review where we asked the question "What themes have been studied in the context of vision impairment and employment?".

Study Objectives:

1. To synthesize knowledge from existing studies conducted on visual impairment and employment.
2. To identify the gap(s) towards the employment integration of people with vision impairment.

2.0. Methods

The scoping review approach is an assessment of the size and scope of available research literature (52), and can summarize the range of evidence to convey a field's depth and breadth (53). The present scoping review aims to synthesize knowledge from the existing research on vision impairment and employment. We followed the steps outlined by Arksey and O'Malley (54), which required that we identify the research question, identify the relevant studies, select the study based on a set of inclusion criteria, chart our data, and conclude by collating, summarising, and reporting the results.

Identifying the research question

The research question was developed in collaboration with my supervisors as part of a larger reflection on a project on employment and vision impairment in Canada, funded by Accessibility Standards Canada. These discussions were informed by the perspectives of persons with lived experience, researchers, trainees, and research professionals, and resulted in the following question that led the review: 'What themes have been studied in the context of vision impairment and employment?' Following a clear definition of this question, the Population/Concept/Context framework (53) guided the development of our search strategy, which was accomplished in collaboration with two Health science librarians from the University of Montreal. For this study, persons with vision impairment were defined as individuals living with subjectively reported or behaviourally measured sight disabilities (i.e., low vision or blindness), irrespective of the time of onset or severity. Employment was defined as having paid work, either part- or full-time. Preparedness was considered as a state of readiness for employment and employment environment as the people, the place, and the policy of an organization. The spatial context for this study was a global perspective.

Identifying relevant studies

A comprehensive search of six electronic databases (Embase, Medline, PsycINFO, CINAHL, Global Health, Web of Science) was conducted using the search strategy (see Table 1) for an example of the PubMed database). The search was performed on the 1st of February 2022, a second search was performed on the 7th of October 2022 in Google scholar and using the Research Rabbit platform to identify any recent or relevant studies. The search was completed without limitations on publication date, location, or language. The index terms and keywords

specific to each database were searched individually and combined with AND in accordance with the search strategy to retrieve data from the scientific databases (People/employees with vision loss AND preparedness/work standard, AND employment environment). The first 100 hits on Google Scholar were screened to identify relevant reports using a priori inclusion criteria (Table 2)

Selection of Studies

The retrieved studies spanned from 1806 to 2022 and were imported into EndNote (Clarivate Analytics, PA, U.S.A.), and thereafter exported to Covidence (Veritas Health Innovation, Melbourne, Australia), a screening software for reviews, where duplicates were automatically removed. The selection of studies was completed in two stages, beginning with the title and abstract screening, whereby each abstract was viewed by two of seven members of the research team. Thereafter, a full-text screening was performed independently by the first author. The research team members have experience with conducting scoping reviews and met to discuss any challenges and uncertainty related to study selection. Inclusion and exclusion criteria (Table 2) were established. Studies on other forms of disability and employment, non-peer-reviewed journal articles, articles published in a language other than English, and those with no available full-text access were excluded during the full-text review. Any disagreements in the two-stage screening process were resolved by the research supervisor. A flow chart of the study exclusion process is shown in Figure 1.

Charting of data

The team developed a data extraction spreadsheet to include study details, such as journal, the year of publication, study location, design, methodology, population, the scope of the study, findings, and recommendations. Using a qualitative approach, data emerging from the main findings, interest, conclusion, and studies' recommendations are presented in the results section to answer the scoping review question.

Data synthesis and reporting

Following data charting, qualitative content analysis was conducted by incorporating the guidelines published by Colquhoun et al. (55) and Sandelowski (56). Findings were synthesized

from the content of text data through the systematic classification process of coding and identifying themes or patterns (57). The content of the qualitative data of each article was thematically analyzed to identify repeated patterns of meanings (58) in a qualitative data set. The analytical themes emerged inductively from the qualitative data and initial patterns were noted and interpreted. At first, each study was analyzed at an individual level, then compared across broad themes to identify the repeating patterns.

3.0.   Results

Study Characteristics

The 43 selected studies were published between 1974 and 2022. Most of the studies originated from the United States (n=29); others were from Canada (n=3), and the Netherland (n=2), as well as individual studies from Greece, Sweden, Australia, New Zealand, Israel, Japan, Turkey, Norway, and India, as well as one collaboration of 11 European countries. During thematic analysis of their findings, the following reoccurring themes emerged: social support, disability rights and system, transition strategies and challenges, career, employment integration, employer's hiring behavior, workplace, adaptive potential (post disability), and employment sustainability/retention (Figure 2). These themes summarize the influencing contributors to employment success in the context of vision loss, either at birth (congenital vision loss) or at a later age (acquired vision loss) that have been studied to date. They are discussed from the perspective of PVI, their employment environment, as well as within vocational rehabilitation, and are presented here to portray the potential steps leading to employment integration success from pre-employment, process of training, employment seeking, actual employment and post-employment; however, this order is not compulsorily associated with all individuals or sequential but within a general context.

3.0.1. Social support

Social support is associated with how an individual receives general or specific supportive behaviors (available or enacted upon) from people in their social network, which enhances their functioning and may protect them from adverse outcomes (59). According to Papakonstantinou and Papadopoulos (60), social support is a type of assistance that individuals receive or expect from those who meet them. There are four types of social support: (1) esteem support, (2) informational support, (3) instrumental support, and (4) companionship (60,61). In most studies, social support is discussed broadly in the context of family, friends, community, rehabilitation professionals (62,63), educational institutes, and/or the employment environment (62). While social support was mentioned frequently, seven studies emphasized the role of social support in employment integration (36,62,64–67). These studies refer to the prosocial behaviors that individuals receive from their family and social environment to enhance social functioning and employment integration. Individuals with vision impairment usually originate from a sighted

family (66); Thus, social isolation can be experienced early on, having a negative effect on all aspects of life. However, social skill development can also begin at an early age, depending on the level of social support received. This skill, if enhanced early, becomes very useful for employment success (68). Hence, social support is a critical determinant for character building, confidence, esteem, doggedness, and a great source of motivation (63,66), explaining the ease with which some PVI sustain quality employment without vocational rehabilitation or an employment integration program.

Role models contribute to social support by offering career counseling and sharing experiences that address the unique concerns of PVIs preparing for jobs (e.g., disclosure, requesting accommodations, and self-advocacy). Improving self-efficacy is especially critical for a person with vision impairment. Hence, working with a mentor who is also visually impaired, and working in the same field, can provide essential benefits to overcoming these employment barriers (66,69,70) .

Esteem support is reported in the context of family support, support from teachers and colleagues at schools, employers, and work colleagues, as well as from the community and role models. This support often takes the form of appraisal, encouragement, and equal treatment with the sighted individual. An absence of this support from a lack of concern, or discrimination will often result in self-isolation, reduced motivation, and poor-quality relationships with others. Esteem support can help create and shape an individual's identity and personality, and is not restricted to any phase of life, specific individual, or sector. Most studies indicated that esteem support may drive other levels of support. Poor family support (65) social discomfort, cynicism with an impact on social engagement, discrimination, hostile workplace (71), and social isolation (66,72) are some of the barriers affecting successful employment of PVI. In comparison, sound support systems from family, friends, society, and the employment environment are vital facilitators of employment success (62,63,73).

Instrumental support defines the provision of practical assistance to help individuals ease challenges. This support can take the form of tangible aids and services, encompassing the support offered at educational and rehabilitation institutes (36,67,69,74), and in the employment environment. It is manifested in the academic integration of PVI among the sighted community to facilitate communication, collaboration, and transition into the work environment with sighted peers (75). Special education for PVI should not be perceived as totally restrictive or detrimental

to employment integration. Instrumental support in a rehabilitation center is evident in the development of employment integration programs targeted at helping PVI prepare and develop tangible employment skills. These skills range from orientation and mobility skills, resume creation, job application, assistive and adaptive devices, communication skills, and other relevant skills for employment success (36,69,74). For the employment environment, these supports usually create an accessible and inclusive work environment and provide assistive and adaptive devices and technology for effective productivity (76).

Informational support refers to the guidance intended to solve problems by sharing valuable information, advice, and suggestions. Informational support for PVI is the information received from parents, friends, rehabilitation professionals, role models, and even the employment environment. Such information could include details about specific services (70), legislation (77), job openings, career choice advice, or answers to specific questions (69,78). Information support is associated with good relationships[40], and is hindered by social isolation (66). Social isolation, in turn, has an impact on the quality of information, individual career choices (75), transition process across the different stages of life (66), employment, and even employment productivity (78,79).

Companionship support consists of the close social relationships that individuals develop with their family and peers, and their joint participation in leisure and recreational activities. Social support transcends the family and plays a vital role in the transition of a person with vision impairment across the phases of life. Hence, the successful employment integration of PVI greatly depends on support, thereby driving inclusion and preventing social isolation, especially when imbibed early. While special education or schools could be an advantage, it could also be detrimental, as this type of segregation socially isolates the sighted population from PVI, thus leading to social awkwardness and difficulty bridging the social gap (66).

3.0.2. Disability rights and service systems

In the USA, the implementation of the Americans with Disabilities Act/ADA (80) encourages the employment of PVI, such that no one has the right to be discriminated against solely based on their disability, given that they can accomplish their duties with the necessary accommodation. This is in line with Canada's Employment Equity Act (1995) and Accessible Canada Act (2019) which seek to achieve workplace equity and improve employment

opportunities by encouraging the establishment of working conditions that are free of barriers for PVI. Despite the implementation of these laws, there seems to be negligence and challenges associated with the practice of the law on the part of the employers, often resulting in disputes. To achieve the goal of the ADA and other similar disability rights, effective strategies need to be in place to ease work-related conflict resolution.

According to Blanck and Folberg (81), health care providers need to be fully aware of the employment legislation act, considering their professional role in eye care. They play a role as mediators between employers, insurance companies, federal agencies, and public policy. Hence, eye care providers must know the provisions of this legislation and be prepared to communicate accurately with all parties involved. The judgment of an eye care professional who is knowledgeable about disability legislations will help keep many qualified PVI at work and thus significantly address the unemployment rate.

Disability rights and privileges vary across countries and territories. The traditional approach to employing people with disability has been sheltered work, even with a history of not providing adequate working conditions, not paying adequate salaries, and constraining people who could, in fact, be employed in the open market, based on the assumption that they are incapable of obtaining employment in the open market. Sheltered work has been replaced in many countries (e.g., Australia, the United States, Canada, and the United Kingdom) with 'supported employment' strategies designed to offer employment options in mainstream enterprises. The North American approach, developed in the United States and Canada, requires employers to accommodate the known limitations of disabled employees. Such accommodations may include alterations in the physical layout of workspaces, altered equipment use, job restructuring, modification of work schedules and training, and the provision of aids and/or personal assistance. The European approach requires employers to make their entire workplaces accessible (82).

These benefit discrepancies (83) could account for the differences in the priority given to the employment of PVI. In addition, the approved reimbursement of disability benefits to PVI, though advantageous, was also identified as a barrier to employment in some cases. Some people with visual disabilities have instead become overly dependent on this benefit and would rather not search for a job. There is also the concern of losing these benefits with acquiring a particular type or level of the job (69). Furthermore, there is the speculation that PVI are not fully aware of their rights and privileges, especially as adjustments to the laws are made. The lack of accessible

information was identified as a core reason for this ignorance; hence these laws must be made available in an accessible format even as they become revised (69). Disability rights transcend all the phases of life, offering more benefits and legal grounds for addressing the concern of unemployment among PVI.

Disability systems. Vocational rehabilitation is a support service tasked with preparing PVI for the workplace by helping them develop strategies and adaptive skills to overcome the work integration barrier. It operates through the development of employment integration programs or services (36,69) in collaboration with staffing agencies (74,84). The members of the interdisciplinary team (e.g., eye care providers, low vision therapists, vocational rehabilitation professionals, job placement agencies, and job accommodation networks) all need to be knowledgeable about of federal and state laws regarding workplace discrimination, in addition to available assistive device programs and their eligibility criteria (85). The study by Farnsworth (84) emphasized the need for rehabilitation services to work more closely with staffing agencies, rather than making them an option, and with the employer, to facilitate more employment opportunities.

Luft et al. (66) reported a shortage of trained professionals with expertise in blindness and deafness, which significantly impacts the employment integration and skills acquisition for the employment of skilled personnel with vision loss. To further facilitate the effectiveness of the rehabilitation service, vocational rehabilitation professionals should create a structure or curriculum within their service that enables the transferability of skillsets into employment for productivity and safety (86,87). While vocational rehabilitation services and programs could be instrumental for skill acquisition, they are not compulsory for all individuals with visual loss, especially those who have developed the requisite skillsets (75). Hence, the goal of the rehabilitation process should be clearly defined and specific to the individual, to help people return to old jobs or get new jobs; or develop self-employment and independence (88).

3.0.3. Transition strategies and challenges

Life advancement occurs in phases that transition into each other; there is a time for education and a time to work, allowing an individual to implement their academic knowledge in the work environment. People with visual disabilities often experience significant transition barriers compared to sighted individuals. From the perspective of PVI, the development of social skills, support systems, academic competence, assistive technology, and self-advocacy were major

factors identified to aid the transition to employment. Social isolation, communication difficulties, limited access to information, collaboration challenges between educational institutes and vocational rehabilitation organizations, and difficulty establishing a career after high school were significant limitations to effective transitioning (64,66,69,75,79,84).

From the perspective of the employment environment, discrimination in the hiring process and poor work culture and policy were significant barriers to employment integration (67). Beyond the education and skill acquisition of a person with vision loss, systems need to be in place to facilitate and sustain their employment. Interdisciplinary transition services structured by a student-centered plan, with transition specialists in both special education and rehabilitation, can ensure that deserving students are able to pursue rewarding, productive lives beyond the classroom (66). According to Zhou et al (40), the practice of computer training is a key component of the vocational preparation of transition-age youths with vision impairments especially since we live in a highly computerized society.

3.0.4. Career

Employees who want to advance in a particular field need to have a thorough understanding of typical career paths for the field. In this review, a career for a person with vision impairment in the context of employment is discussed regarding career choice, and career readiness/ exposure.

Career Choice is often a significant challenge for a person with a vision impairment, because of the negative preconceived ideas often associated by the sighted community for a person living with low-vision or blindness. While careers are abundant, the societal restriction is a major influencing factor, posing more significant limitations than the presence of vision loss. While a person with vision loss is capable of various tasks and professional careers, s/he is often trained to fill stereotype opportunities like typists or tele-marketing (75,83).

Career Readiness/Exposure describes the influencing factors for a career and the preparedness of a person with vision impairment for that chosen career path. For PVI, active engagement in job shadowing, visiting job fairs, career exploration, job exposure, and early career planning are facilitators to a rewarding career beyond mere discussion of career choices. Role models who have excelled in a career path often prepare PVI to embrace professional careers (69). However, lack of motivation and reliance on disability benefits often impede the quest for a rewarding career and preparedness. PVI should be exposed to career education from childhood

irrespective of the presence of vision loss and should be encouraged on the feasibility of their career interest (69).

3.0.5. Employment integration

This theme explores the role and effort required of all involved parties, and how they affect employment outcome.

Personal Factors: The employment process begins with the individual, and their personality plays a crucial role in employment success (69,83). Generally, PVI who had the opportunity to develop and demonstrate organization and communication skills, self-determination, good grooming, advocacy skills, and networking ability were primarily successful in their employment journey (64,75).

Labour market competitiveness: Employers search for skilled people to take up specific job roles. Much like for sighted individuals, the competitiveness of a person with vision loss depends on their age, level of independence (e.g., mobility), academic training, personal traits, self-advocacy, vocational rehabilitation skills, spoken and written language abilities, prior work experience (62,72,75) and computer competence (89).While previous work experience is a critical factor in labor market competitiveness, most PVI often are often not presented with such opportunity(90). According to Danaher (69), PVI could leverage summer internship programs, club activities, and even volunteering to compensate for this lag. Furthermore, level of vision impairment, the use of mobility aids, and the presence of other chronic conditions are significant hindrances to the employment of a person with vision loss (72). Job readiness for a person with vision impairment is a measure of physical (e.g., physical capacity), psychological (e.g., personal acceptance of their limitations), as well as occupational (e.g., skill sets), and placement readiness (e.g., participation in job application) (88).

Job seeking: A positive attitude and persistence are integral traits to attain employment success, considering the barriers associated with accessing the labor market (83,91). Lack of Prior work experience (62,65,90,91), lack of proactiveness in a job application (74,83), and a visually unappealing resume are some of the challenges during application (92).

From the system perspective, variation in the available job choice, employment legislation across countries and regions, and employer hiring behaviour are significant hindrances that are often overlooked (66,67,73,78,79,87,93).

Job application: On the one hand, most employers have been reported to have a negative attitude towards employing PVI despite existing legislation encouraging the employment of PVI. Employer attitudes towards PVI can be influenced by their employee's and cliental base perceptions of working with a person with vision impairment (73). On the other hand, employers have also pointed at receiving fewer job application from this population (67). Hence some employers are willing to consider qualified job candidates with disabilities, but it remains unclear whether they will hire those who reach them, and those who appear most ready to be productive (74). A personal relationship with a person with a vision impairment also influences employers to consider a person with vision loss. In addition, age and educational level influence the employer's hiring behavior, whereby younger and more educated employers appear to have a positive attitude toward PVI but were not influenced by gender (73). In general, while it may be important to educate the employers of the ability and competence of the PVI (67), employers must also be willing to give this population an opportunity to prove themselves (68).

Task performance: Upon attaining a job, PVI are mandated with the responsibility of completing the duties for which they were employed. Job productivity was identified to be facilitated by the participation in an employment integration program (36), as well as the provision of assistive devices, and other necessary accommodations (79,94) and safety (87). Although accommodation affects the level of productivity of the PVI, this population works differently. Therefore, productivity needs to be differently defined for this population, with a different measure of performance put in place. Lack of productivity was often associated with poor flexibility regarding job tasks and little opportunity to develop new skills (79).

Employment Agencies: The role of employment and staffing agencies is often neglected in the employment integration of persons with vision impairment (66,67). Staffing agencies can work with vocational rehabilitation and, in collaboration with the employers and their organization, identify a qualified employee that meets workplace requirements and demands, to maximize employment opportunities (95).

3.0.6. Employment environment

These themes discuss the impact of the employment environment. Accessibility and inclusiveness of the workplace remain significant concerns for PVI. Specifically, mobility and physical accessibility (68), web accessibility, and accessibility of digital and text materials were

identified to be considerable barriers both before and during employment because the lack of accessibility, by definition, restricts access to information (79). This accessibility challenge often excluded people with a vision impairment from available employment opportunities and affects skill acquisition, settlement into the work environment and effective productivity at the workplace (90). Although the change and implementation of policy encourages the need to make the workplace accessible by providing necessary accommodation, this does not always translate into reality (79). From the perspective of the employers and their environment, the safety concern for employees with vision impairment remains an employment limitation (87). Employers often associate an inclusive workplace with unfavorable interference with business operations and costs. In addition, employers have expressed concern that assistive devices need vary among individuals, and the cost and training implication have negatively impacted employers hiring behavior (73).

Work policy: Organisation size, culture, and policy influence employers' hiring behavior. Larger organizations are more likely to have employment policies considering PVI, but the employer's attitude does not appear to vary with the business type or entity (73). Collaboration by developing a good relationship with vocational rehabilitation service providers before the hiring process can influence the employer's hiring behavior (67), whereby fostering a relationship with agencies and organisations to improve community awareness of the needs and potential of people who are blind encourage environmental changes.

Adaptive potential

For individuals with vision impairments acquired during adulthood, employment challenges often begin after having worked as a sighted individual; hence the challenge becomes a return to work (36). The effect of rehabilitation, the variety of task competence and experience in the previous job(s), the duration of employment, high level of independence, and leadership ability are facilitating factors to return to work (79); however, from the employer's perspective, the size of the workplace (medium to large scale) favors reintegration of PVI, and the type of workplace (public sector are more favourable than the private) influences the return to work in the case of acquired vision impairment. Hence employment re-integration differs from the employment integration for those with no job experience.

3.0.7. Employment sustainability and retention

Employment sustainability and retention are dependent on the level of job satisfaction. An unfair workplace practice, and unfavourable employment treatment of the individual with vision impairment may prevent employment retention (85). Rehabilitation practice often ends when employment is obtained, with no follow up to ensure the effectiveness of the rehabilitation service. Professionals need to work one on one with individual with impairments throughout the entire employment process, beyond the rehabilitation process. Declining job retention was identified as an important type of workplace discrimination. Employees' individual beliefs, aspiration and abilities can influence their behaviour differently when combined within the environmental context of the workplace.

Employment sustainability can only be achieved when everyone recognises their individual role and efficiently contribute their part in unison. Professionals realize and appreciate their role in helping individuals with vision loss prepare for employment. Teachers of students with vision impairments have a responsibility to prepare youths for current and higher education, a determinant to success in the workforce. Orientation and mobility specialists teach independent travel skills, while vision rehabilitation therapists teach daily living skills, both of which enable independence. Assistive technology specialists play an important role in preparing individuals with vision impairments for the workforce, where the requirement for digital skills is rapidly increasing across all types of jobs, and salaries for jobs requiring greater digital skills are the highest (96).

4.0. Discussion

The goal of the present scoping review was to synthesize the current knowledge about, and to identify the potential gaps in, the employment integration of PVI. The emerging themes which depict the research scope covered in vision impairment and employment are Social Support, Disability rights and Service systems, Transition strategies and challenges, Career, Employment Integration, Employment Environment, Adaptive Potential, and Employment sustainability and Retention.

Social Support in all its ramification forms the basis of employment success and continues across all the phases of employment, forming the bedrock upon which effective employment success structure are built and sustained. Disability rights and service system plays a crucial role in bridging discrimination gap and providing the technical, human, and organizational support for PVI and employment organization. It encompasses the whole process of advocacy and legislation to prevent employment discrimination, the training of PVI for independence, and equipping them with skills for employment readiness. The impact of these systems is evident in the fact that is becoming a common goal to find PVI in mainstream jobs, compared to previous approaches where jobs were mostly available in sheltered workshop.

Disability service systems plays a crucial role beyond training PVI to attain independence or carrying out activities of daily living. This robust system has been identified to as instrumental to employment organization. Effective collaboration between the disability system and employment organization could alleviate organization's concerns, ignorance and challenges associated with employing PVI. While the benefit associated with this collaboration has been identified, it has not been fully maximized or embraced. Systems of integration exist to ensure effectiveness from basic unit of the life- family, to the environment, education, and employment unit. While these systems have been effective individually, transitioning across these units remains a challenge. For PVI, the transition from education to employment is challenging, as there is no defined strategy to facilitate this process. Hence the cycle of restriction continues at every transition phase, and this impedes employment integration and success. This major gap could be bridged with effective collaboration among the different institutions for early intervention and easy transition.

The employment integration process for PVI is similar to that of the sighted population. Success in daily activity builds the character for success in employment. The opportunities a sighted individual seek to attain employment success are also what a person with vision

impairment seeks. However, while the sighted population have these privileges, PVI do not, due to the lack of inclusiveness and accessibility challenges, and in other cases due to employer's hiring behaviour. It is evident that certain career paths are not accessible to PVI, considering the level of visual task involved. However, other career opportunities abound, and PVI should be allowed the flexibility of choosing and pursuing them, with the assurance of employment success like any sighted individuals. Human or system-imposed barriers due to lack of inclusiveness should be eliminated, and opportunities like internships, career fairs etc. should be made accessible and inclusive, in order to facilitate adequate employment environment preparedness.

PVI should be given an opportunity for performance, with the requisite support and accommodation. Job performance should be judged with equity, only when the right provision is made. Employers and organisation who have policy in place should ensure that it does is not a written document, but a practice well implemented and should also come to terms with their inadequacy. Thus, seek to collaborate with staffing agencies or vocational rehabilitation institute seeking expertise to meet up with their inadequacy. Beyond a one-time approach, organisation practice of inclusion to facilitate workplace participation of PVI should be a continuous practice to ensure productivity and satisfaction. Only when a level of job satisfaction is attained can employment sustainability and retention be achieved. Hence, equal participation is required of the employers and of the PVI. Rehabilitation professionals or diversity service systems must also ensure that there is a continuity and follow up system in the standard of service they provide to PVI and employment organisations alike.

Furthermore, while studies explored employer's hiring behavior, the retention ability was not explored. The identified themes also discussed likely vary with geographical location, depending on legislation, and availability of job training and support from rehabilitation agencies [65,66]. Only a few studies have focused on how the employers, their workplace and systems facilitate employment for PVI. The readiness of the employment environment to engage PVI decides success across the stages of the employment lifecycle - Attraction, Recruitment, Onboarding, Development, Retention, and Separation [67]. Hence the employment environment has an undeniable role in the sustainable participation of PVI in the labour force. The need to explore the readiness of the work environment is of particular importance since these environmental factors can be more practical to change in comparison with functional concerns of a person with vision impairment.

Some of the major gaps identified from the scoping review in the research on employment integration for PVI include transition strategies, workplace participation and the perception of colleagues, and work evolution. The changing nature of the world of work and developments in technology offer the potential of greatly reducing unemployment and could also increase unemployment if not well harnessed. Further research and focus to improve employment rate of PVI should be geared towards these identified gaps.

Clinical implications

Employment success and the resulting improvement of quality of life of PVI involve all professionals who encounter this population. Beyond diagnosis, eye care professionals need to be fully aware of the disability and employment laws, the capacity a person with vision loss possesses for employment success. A good liaison with vocational and rehabilitation professionals can also help to facilitate workplace integration, as well as ensuring that the privileges of this population are always upheld. Collaboration for early intervention, transitioning, and employment success is a must, rather than an option, hence the need for an effective system to facilitate collaboration from the time of diagnosis and across all levels of societal integration (e.g., education, employment).

Limitations

The scoping review was intended to cover a global perspective, but the available data were exclusively from countries that are considered part of the Global North, with the developing countries not represented. The exclusion of non-peer review publications and systematic reviews, as well as those where no available full text was available could have resulted in additional details becoming unavailable.

5.0. Conclusion

The high unemployment rate among PVI has been a challenge before and after the implementation of various disability laws. While the goal of such legislation is to ensure that equal opportunity exists, this is often not achieved in the employment reality. From the themes described above, it is evident that employment success for PVI requires a holistic approach. However, most effort regarding the change in the unemployment rate is directed towards PVI, and not employers or work environment factors. PVI are also often saddled with the responsibility of effecting this change by constantly seeking to be more skilled, striving for equal opportunity as the sighted individual. While PVI are being prepared for employment, a commensurate level of the preparedness from the employment environment is questionable.

The employment environment plays a critical role in sustainable employment integration success. Hence, beyond identifying the limitation the employment environment possesses, an evidence-based solution is required to address the high unemployment rate among this population with visual impairment. Therefore, a directional shift to the employment environment is the next logical step to attain an equilibrium of effort in creating an accessible and inclusive workplace. A level of proactiveness and preparedness is a must to attain employment success. It is imperative to know the level of employment environment preparedness in welcoming a person with vision loss into an organisation.

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Transition

The scoping review presents an overview of the current state of research knowledge related to addressing the unemployment rate of PVI. The outcome of the scoping review shows that, over the years, a lot of attention has been directed toward the identification of the barriers and facilitators to employment of PVI from the perspective of the PVI and their employment environment. These identified barriers and facilitators have been translated into actionable plans, which include the implementation of disability acts, skill acquisition and education, vocational rehabilitation training and employment integration programs to improve the labor market competitiveness of PVI.

Also, worthy of note in this plan was the development and usage of the TAPE measure- A Tool for the Assessment of employment Preparedness specifically for persons who are blind or partially sighted (1). The effectiveness of this tool has been indicated (2) to help PVI identify skills, level of labour market competitiveness and preparedness for employment. Therefore, those who are not fully ready are able to identify core areas of development to prepare for employment, thus, instigating a proactive approach to employment readiness. However, these actionable plans seem to be one-sided, whereby the employment environment seems to lack an incorporation plan beyond advocacy or policy.

The employment environment plays a critical role in sustainable employment integration success. Hence, the second study sought to explore the area of preparedness required of the employment environment to welcome PVI.

Article 2: Towards Facilitating a Prepared Employment Environment to Welcome People with Visual Impairment. (Still in preparation for journal publication).

Tosin Ogedengbe, Mahadeo Sukhai, Walter Wittich

Authors Contribution:

All authors contributed substantially to the conception and design. Tosin Ogedengbe was solely responsible for acquiring, analyzing, and interpreting data. She was in charge of drafting all documents needed for the research execution, from grant applications, proposals, and recruitment to the articles. Wittich and Sukhai revised all prepared documents critically for important intellectual content and approved the final version to be published.

Abstract

The successful inclusion of people with vision impairment (PVI) into the workforce remains a significant concern despite the implementation of various legislative and advocacy approaches. The term 'inclusion' has become common across organizations, with various practices portraying inclusiveness. Yet PVI still feel excluded due to different accessibility challenges. A one-size-fits-all approach could account for the challenge in job acquisition and retention. While there is a common interest- inclusiveness- the employment environment (EE) must embrace readiness to achieve inclusion in the workplace fully.

Objective: To explore the employment journey of PVI (low vision and blindness) from the perspective of rehabilitation professionals, employers, and PVI; and develop an EE preparedness tool based on the outcome.

Method: A co-creation approach involving four focus groups and twelve interviews with employees with vision loss and employment domain experts was employed to gain insight into participants' workplace inclusion experiences. Using thematic analysis, potential content topics for a tool to assess the preparedness of the employment environment to hire PVI were synthesized from the participants' insights.

Findings: Beyond the preparedness of PVI for employment and having physical workplace accommodation, there are less tangible variables that foster workplace preparedness and favors job acquisition and retention. These findings are presented broadly under willingness, education, experience, and collaboration.

Conclusion: If job retention is going to be a goal and means to address the high unemployment rate, then the evaluation of workplace preparedness should be a priority to determine the organization's preparedness status and provide an indication for next direction.

1.0.Introduction

There is a common concern across developing and developed countries about ensuring the sustainability of employment success for PVI (1), as it is evident that the unemployment rate among this population is high. Addressing the high unemployment rate is important, considering the importance of employment in the overall quality of life of PVI (2) and the economic implication in addressing labor shortage (3).

Decades ago, having a vision impairment was associated with lack of performance and dependence which has given rise to the perception that this population is not fit for corporate setting (4); however, PVI can function most effectively given the right environment, skills, and tools (1). Depending on the level of education and skill set, this population can perform well in different roles. However, in reality, there seems to be a bias in the kind of jobs available to them across developing and developed countries. PVI do not have the same range of opportunities available to them as sighted people (1).

Over the past decade, the focus has been on bridging the discrepancy between the unemployment rate of the general population and that of those living with visual impairment. The synthesized knowledge from a recent scoping review on visual impairment and employment gives a detailed overview of the research findings in this field (Article 1). In addition, it highlights the gaps in the research on employment integration of PVI, thus, giving direction for further exploration. The scoping review findings are briefly discussed under the following headings: Social Support, Disability Rights & Service System, Transition Strategies & Challenges, Career, Employment Integration, Employment Environment, Adaptive Potential, and Employment Sustainability & Retention.

Social support was identified to be the tangible and intangible assistance offered to ease the integration of a person with visual impairment into the workplace. Adequate support cuts across all the life stages of a PVI – from the family, to environment, and the employment section. Support in the workplace is crucial and should be continued throughout employment span.

Disability Rights & Service System discusses the policy and the rehabilitation services available to ensure that PVI are given equal opportunity as the sighted. A collaborative approach between rehabilitation service providers and employment organizations was crucial to enhancing employment integration for PVI.

Transitioning across the different stages of life for PVI is often characterized by repeated circles of barriers. Integrating into the employment phase post-education is often daunting, as the educational program does not incorporate this into the learning curriculum, and PVI faces accessibility change and discrimination in the workplace.

Career options for PVI have for the longest time been stereotypical – like typists or telemarketing. Changing this stereotype will require early career exposure (career fairs, talks and internship) to ensure the acquisition of appropriate skills and experience.

Employment integration is a summation of all the factors necessary for employment success for a person with visual impairment. These are personal factors, labor market competitiveness, job seeking, job application, task performance, and employment agencies. PVI who demonstrate great competence in independence, communication skills, self-advocacy, networking ability, job-required skills, academic training, and being proactive and dogged in the job search process are more likely to attain employment success. However, factors such as lack of information, the inaccessible job application process, and employers' hiring attitude hinder many from getting jobs. Task performance is also a significant challenge for the few who enter the workplace. Productivity and job satisfaction was identified to be based on participation, which depends on the provision of assistive devices, individual-specific accommodation, and flexibility in the adaptation of job task.

The accessibility and inclusiveness of the employment environment, which involves the place, the people, and the organization's policy, contributes to employment success. Yet, most workplaces have accessibility challenges and lack an inclusion plan. Most employers have ascribed their lack of inclusiveness to cost and safety concern.

Employment sustainability and retention depend on workplace practice and job satisfaction of employees with vision impairment and the employers. Hence all parties have been identified to have a critical role to play, i.e., PVI having the right skills and the employment organization providing the required environment for productivity. Considering the limitation and concerns of the employers, collaboration with professionals is advised to create an enabling environment for work for there to be an equilibrium of effort.

Generally, the identification of the barriers and facilitators to employment success offered direction for intervention for PVI, employers, and their environment. The interventions aim at reducing discrimination – delivering an equal opportunity as the sighted individual (4–6). Barriers

such as discrimination, employer's negative hiring behavior, lack of skills and productivity, and inaccessibility brought about the implementation of disability rights and policies, advocacy, vocational rehabilitation, and assistive technologies.

The persistent high rate of unemployment, despite the measures put in place, raises questions across recent studies. Why can only a few percent of PVI attain employment success? What accounts for this employment success? Most studies and implemented intervention plans have focused on making PVI workplace-ready and employable (7), neglecting the fact that employment is everyone's business (8). A large percentage of this population who are also prepared for employment are either underemployed or underpaid (9). The other factors outside the control of the PVI that influence employment, such as workplace participation, and inclusion do not receive substantial attention/focus (10)

In contrast, others experience accessibility challenges at the workplace despite the employment policy and increased claims of inclusion, diversity, and accessibility (11). Employees with vision loss often face physical barriers and psychological, informational, communication, and technological obstacles at work. Among the employed, job retention and satisfaction remain questionable (12), resulting in a repeated circle of uncertainty in employment and ultimately increasing the unemployment rate.

An Overview of the Employment Environment

The contribution of the employment environment is as vital as that of the population with vision impairment to facilitate sustainable employment success. There have been various controversies about employers and their hiring behavior for people with disability. Most employer surveys appear to paint a picture of successfully accommodated workers in a more or less welcoming environment- with flexible work policies and schedules, telecommuting, ergonomic redesign of workstations, and providing necessary accommodation. However, other studies on specific types of disability do not support this claim (13), as the unemployment rate remains high (14,15).

Undoubtedly, the world of work for PVI has moved from where it used to be, but it is still far from where it should be. The COVID-19 pandemic significantly impacted the work environment, resulting in the rapid evolution we call *the future of work*. This has brought technological, social, environmental, and economic changes in ways not initially thought possible.

This workplace restructuring and global labor shortage offer a leverage point for including PVI (3,9). The terms inclusion, accessibility, and diversity across organizations are generally gaining more popularity. However, as companies make the recruitment process inclusive and accessible, it does not end there. Other accommodative and attitudinal practices that make the workplace more welcoming are still lacking.

The assessment of employment environment preparation is a crucial part of employment success (16). The effectiveness of preparation was demonstrated using a Tool for the Assessment of Preparedness for Employment for PVI (TAPE measure) developed by Shaw and Gold (17). This tool consists of a list of questions for the prospective employee, developed from research findings, with an associated scale for grading. An indication from the grading helped PVI recognize their strengths and possible area of improvement to meet the demand of the job market (5). While the TAPE measure offers a systematic way for PVI to assess their strengths and weaknesses regarding employment readiness, no such tool exists for employers. A one-sided focus and preparation on the person with the visual impairment cannot provide a sustainable solution to the unemployment rate of PVI. Therefore, it is crucial to have an evidence-based solution that assesses the preparedness of the employment environment to attain an equilibrium of effort and eventual employment success.

Study Objective

The present study is integrated into a larger project that aims to co-create the content of a Tool to Assess the Preparedness of the Employment Environment to welcome PVI into their organization. We aim to synthesize the perspective of the employee with visual impairment (EVI) and employment domain experts to understand what is required to prepare an inclusive workplace. We asked both groups of participants the question: What are the most important aspects of preparedness for an employer who wants to successfully integrate a person with visual impairment into their company/employment?

2.0. Method

Ethics approval was obtained through the *Centre Intégré Universitaire de santé et de services sociaux du Centre-Sud-de-l'lle-de-Montréal, Comité d'éthique de la recherche en réadaptation et en déficience physique* MP-50-2023-1654, and the *Université de Montréal* 2022-1832. The COREQ (COnsolidated criteria for Reporting Qualitative research) Checklist (18) was adopted for an explicit and comprehensive reporting of the study methods and research findings.

Study design

We utilized a phenomenological perspective to explore and gain insight into the study area. This was accomplished using a co-creation approach. Co-creation is the collective creativity shared by two or more people (19). It centers on the principle that the users know about their needs, daily life, and creative ability (20). The decision to use a co-creation approach was made to align both the needs of PVI and the concerns of the work environment. The aspects of the co-creation process incorporated into the interviews and focus groups for developing the employment environment preparedness tool are individually supported by meetings and progress following the feedback from the earlier stages (21,22).

Participants

Seventeen participants comprising nine employment domain experts and eight employees with visual impairment were recruited for either individual interviews or a focus group session. The employment domain experts included four directors, two diversity and inclusion consultants, one human resource manager, one workplace design professional, and one business owner, from the rehabilitation, academic, health, policy, and inclusion sector. Six domain experts were employed by large-scale organizations (government), and three operated in small-scale enterprises (private). Participants were recruited based on their experience engaging PVI in the workforce, irrespective of the sector. This approach offered a wide range of views and experiences.

Participants living with visual impairment (six with low vision and three with blindness) were individuals who are currently employed, those with prior work experience within the last ten years, or who have successfully held at least one job since reaching working age (18+). The working age (18+) was used because it is generally expected that at this age, an individual has completed basic education and has the legal right and responsibilities of an adult. Their past or present employment was either part-time or full-time, remote or in-person, and in a professional

environment with a minimum of six months of work experience. This period was chosen given the development and adaptation of accessibility features in mainstream technology used in the employment context today (23).

Data Collection

Data were collected remotely using the Zoom platform (Zoom Video Communications Inc., 2011). The focus groups with PVI and the interview sessions with the employment experts were scheduled separately. Participants were recruited through the research supervisors' professional networks and the Canadian National Institute for the Blind (CNIB). The internal structure and coordinators facilitated this process at this organization. Following the recruitment process, all follow-up was conducted via email to inform eligible participants of the research in more detail, and to obtain informed consent. A demographic questionnaire and the interview question guide were sent to allow participants to prepare for the interview or focus group session.

Each meeting began with an introduction of the study participant(s) and the session leader(s), followed by an overview of the research, the purpose, and the direction of the discussion. Ground rules were established to facilitate communication, and attention was drawn to the need to record the session for transcription and data analysis. The focus groups or interview sessions lasted less than 90 mins and followed a semi-structured interview guide (see appendix A) with general and specific open-ended questions. The questions cut across individual experiences, workplace design and accessibility, technology, communication, access and support, recruitment, policy, and accommodation.

Participants were encouraged to further the discussion and share their opinion on all topics and questions.

Data Storage and Analysis

All consent and recording files and data were stored on a secure password-protected server of the *Université de Montréal* (OneDrive). Thematic analysis was conducted following the procedure proposed by Braun and Clarke (24). It began with the interviewer taking field keynotes, clarifying questions, probing for better understanding, and offering a summary of comments to seek confirmation to ensure that the participant's contributions and not the interviewer's idea were analyzed. Automated speech-to-text transcripts extracted from the Zoom recording were read, corrected, and re-read, then analyzed appropriately.

This data analysis and coding process was conducted with a clear understanding of the research goal in mind. An open-code strategy that involves developing codes through the coding process rather than pre-set code was adopted. To avoid the personal bias and in accordance with the concept of reflexivity, the emerging themes, and related quotes were reviewed by a senior member of the research lab. Self-critique was also employed as further review and modifications were made to ensure the accurate interpretation of the data. Emerging themes were identified, and the themes generated from the two groups (employees with vision impairment and employment domain experts) were compared to identify areas of overlap and distinction (25).

Reflexivity

The awareness of the possible implication of the researcher's prior experience and knowledge could have on the research process was duly noted and checked across the entire research process. This awareness helped in the evaluation of the research decision-making process to ensure it was not based on any preconceived bias. The research question and interview guide were developed, considering the information obtained from the previous study (Article1). To ensure that the concept of reflexivity is maintained, the laid down rule and criteria for recruiting participants were maintained. There was also constant communication of research findings with the research team to clarify assumptions and ensure accuracy. Data collection and analysis were conducted objectively without preconceived expectations. However, the researcher's knowledge of certain terms guided the semi-structured interview process of data collection from the participants. The presentation of the preliminary findings at a local conference also helped to better understand the perspective from which the study data was interpreted. While it might not be

entirely achievable to separate personal experience and knowledge from the research process, this study was conducted as objectively as possible.

3.0.   Findings

Following the thematic analysis of the data from the focus group and interview sessions, this section presents the themes identified in this study about the aspects of preparedness for an employer or organization who wants to integrate PVI into their workplace successfully. The generated themes are grouped into three overarching categories: Support, Willingness, and Collaboration. These categories and the associated themes (figure 3) will be presented, clearly defining what each themes entail to give a context to and supported by representative quotes.

3.0.1. Support

Support in this study relates to both tangible and emotional aspects of social support. It is what enables a person to feel supported at work both emotionally and through provision of accommodations. Supporting activities are those which encourage the efforts of job seekers to obtain and/or retain employment, and employers to offer employment. The subthemes associated with support detail how support can be made available to influence employment environment preparation or a person with vision loss.

Leadership

Leadership emerged as a core determinant of inclusion and its sustainability in an organization. For the purpose of this study, leaders are individuals who have decision-making responsibilities for others and who have socially defined influence or power based on their social, and economic, cultural or religious roles in society. They are the decision makers or trustees, or employers. A participant from the employment domain experts highlighted that the possibility of having a person with vision loss employed, accommodated, and included in a work environment is dependent on the leaders of the organization.

The involvement of top management authority is nonnegotiable if an organization would be and remains inclusive. An employer or other management-level leaders could be interested in welcoming a person with vision loss but unable to do so. They will often be restricted when the senior leaders representing the owner, policy, and decision-makers are not interested or entirely in support of inclusiveness. This is depicted in the quotes:

> "What works is having your senior management on board. If you don't have that, don't bother."

You know, if you're like a multi-layered company, and you are one of your First Level managers, who's trying to be a champion, and if the big boss isn't behind, it won't work."

In addition to the influence of the top management as leaders are the personality of a champion. Here, we consider a champion a person committed and intentional about the course of including PVI in the organization. Hence, having champions in the top-level position and the workforce is crucial for successfully including PVI. These champions should also be included among the organization's workforce to drive a culture of inclusiveness. This finding is conveyed in the quote:

"It's really important to have champions and leaders, and you need a champion that believes in it. So that they will cause the change you can't, you know, as the owner of the business or the manager of the business, you can't do it all yourself, you need to have a champion, preferably champions, to be a positive force in the journey".

The EVI group agrees on the need to have leaders on board and suggested that the subject of accessibility and inclusion be included in education program for leaders to develop an inclusive mindset early. This is represented in the quote:

"The piece to help with all of this, setting aside policies, is that we need to be working with universities that train the people who become future leaders and employers; so, in different fields like business management, as well as the programs where you know people trained to work in leadership positions, they need to include disability and accessibility and inclusion in their courses so that they learn general guidelines around accessibility. But these conversations need to start early on, when people are still at the stage of training so that it's really something they're thinking about going forward."

Experience, Education, and Awareness

According to Hohr (26), experience is based on the interaction between the human being and the world, taking into consideration feeling, action, and conceiving. He further termed the concept of experience as a holistic approach to education. The World Health Organization (WHO) International Classification of Functioning, Disability and Health (ICF) defines education as the acquisition, maintenance and improvement of knowledge, expertise and vocational or artistic skills. This is as provided at different levels of education (e.g., preschool, primary school, secondary school, postsecondary institutions, professional programmes, training and skills programmes, apprenticeships and continuing education), including those who provide these services. While awareness is described as an understanding of something within a context.

The data from both perspectives revealed that, generally, there was no adequate understanding of how PVI could function effectively in the workplace. This was described as a major reason for not hiring PVI. This is represented in the quote:

> *"Sometimes we think, Oh, well, they don't want to hire because they just have prejudices; it comes from lack of information rather than not wanting to do it."*
>
> *"The employer are not confident enough about hiring a person with visual impairment. And for me it's just probably because they don't know about this situation, and they don't have any model to follow."*

The data showed that experience with PVI is a distinguishing factor in the degree of success in including this population. Those with no prior experience identified that it was an initial challenge and often had no idea what to do with this population. How are we going to communicate and have them participate as we work? How are they going to navigate the office space? This uncertainty prompted an active learning process at an individual and organizational level to ensure they can relate effectively with PVI. These concerns were the indicators for training about human guides, accessible documents and presentations, and inclusive communication. This is represented in the quotes:

> *"What works well is that it is our core business. So, we know how to help them, and we know how to deal with colleagues and people who have visual impairment. So that's the*

easy part because the whole environment is ready for someone with visual impairment, and
we have several employees with visual impairment, low vision, or who are blind."

"So, it was the first for me. I didn't know how to guide someone I didn't know how to how
to do a presentation, with people with a visual impairment. And yeah, I didn't know how
to do accessible documents. So, one of the things was, I ask them and got a training on how
to do accessible documents and communicate."

Resource Allocation

Resource Allocation is the process of assigning and managing assets in a manner that supports an organization's strategic planning goals. Resources, especially financially, were identified as a determinant for an inclusive environment. Resources were highlighted in terms of investment in having an inclusive environment and productivity of PVI in relation to time. The financial cost of acquisition was buttressed as a major hindrance.

"I think in a lot of cases; it's not necessarily that they don't want to be human and hire
somebody with vision impairment. It's just that they may not be able to. They may not have
the funds to make those accommodations if they have to cover the cost themselves."

Furthermore, some employment domain experts credited their ease of inclusiveness to the government funds available to them, reiterating that many are unaware of the available government incentives or grants allocated to create an inclusive environment for an organization that decides to employ PVI. This is represented in the quotes:

"You know, we're really fortunate that in the Federal public service we've got all kinds of
policies to support us. We've got budget and we've got resources to help us develop
accommodations."
"Of course, there's lots of subsidies, and you know you can go and get subsidies for hiring
people that are hard to employ. I didn't learn this until recently in my job. It's amazing
what they will give."

Adaptive Workplace

Providing an adaptive workspace is fundamental to welcoming PVI and facilitating their productivity. Adapting the workplace to meet the needs of the employee with visual impairment was recognized as the first step to inclusiveness. This represented in the quote:

"The first step is the adaptation of the workspace and the processes, so that the person is going to be able to have it easier to achieve success."

However, there should be flexibility in adjusting the workplace to ensure that individual specific needs are met.

"I was given a closed-door office because we have the open space office system, which is an ideal cause. Then I'm distracting others around me as my computers talk out loud, and I'm talking out loud. And it's also hard for me to concentrate if others are doing their work around me while I'm trying to listen to my computer."

While assessing the importance of an adaptive workplace, it was easier to be inclusive when the workplace is adaptable and even easier when adapted from the start. This is represented in the quote:

"It's different. You know what I mean, like, you're not going to see any paper in my organization, because I can't read a piece of paper. So, everything was done electronically on the computer. I had to have certain apps made for myself, like my help form."

Furthermore, as organisations make their workplace inclusive, the safety or emergency plan should also be made inclusive. Only an employee with visual impairment felts satisfied about operation, other felts this was not incorporated into the adaptation and training process. This is represented by the quotes:

"The safety measures, I mean they're pretty serious about their safety stuff. I like it, for example, like one of the first things we did was to know where the emergency exits were and what to do in case of emergency"

"It was a disappointment that there was no attempt to accommodate me. You know notifying me when something was moved and then I couldn't find it again. Things like that and also

on Emergency in the building, you know. I think more should have been done to prepare me. I shouldn't have been on my own to deal with emergencies. It was hit and miss at the time, whether you got the information at the right time."

Access to technology

According to the ICF, access to technology is access to adapted or specially designed equipment, products and technology used for employment to facilitate work activities, such as adjustable table, desks and filing cabinets; remote control entry and exit of office doors; computer hardware, software accessories, and environmental control units aimed at facilitating an individual's conduct of work-related tasks and aimed at control of the work environment.

In this study, we discuss technology under the subjects of assistive devices, information technology, accessibility and usability. The EDE and EVI acknowledge the provision of assistive devices as crucial for integration and job performance. The EVI however, pointed out that the condition of certain devices provided were questionable, as some devices were obsolete, and did not meet the requirements specific to the degree of vision loss (The need for a person with low vision will vary from that of a person who is blind). This is represented in the quote:

"*When I started in a new place, and I needed a computer monitor on an arm. They gave me a monitor that was so old it had almost no contrast left on it and when I said to them look you know I appreciate it, but I can't use this monitor because the contrast is so low that I can't see the image well enough. He basically turned around and said, Well, look, you can't be picky.*"

Furthermore, beyond the provision of assistive technology was also the issue of software accessibility and usability. Most information systems used for gathering, processing, storing and communicating multiple types of information for the day-to-day running of the organization's business are often not accessible even with the provided assistive devices. In addition, usability was also a challenge even with accessibility, and this was often the case when adaptation was not suited for the individual. An example of this scenario is the provision of device with zoom option for a person with total blindness rather than a device with text to speech option. Hence PVI still

depend on their sighted colleagues for functioning and are not able to complain about these challenges in order to preserve their jobs. This finding is represented in the quotes:

> *"We do request a new software and several equipment. And we do have many, many things that will be accessible for someone with visual impairment, but unfortunately, it's not fully accessible. So, I would say that we're better equipped than most, but it's still not perfect".*

> *"Systems that aren't fully accessible. So, there are certain things I need to get my work done. But sometimes I need to be assisted to acquire certain information, because the platform is still not fully accessible."*

> *"Everything is not accessible anyway and there are a couple of things that surprised me. Like for the hiring process, all the documents I had to fill were not accessible. So of course, that was an extra job of course because of my visual impairments, but what is positive at the end is that I can have my job anyway, so I was hired."*

3.0.2. Willingness

Willingness is the quality or state of being prepared to do something; readiness based on action rather than openness to ideas. Here, the study presents willingness to Dialogue, Managing Disability Bias and Privilege, Managing differences, Operations, Effective Policy implementation.

Dialogue

   Dialogue describes taking part in a conversation or discussion to resolve a problem. The assumption of the ability, needs and experience of living with vision loss often pose more challenges in workplace adaptation. EVI have expressed dissatisfaction over how disclosing their impairment closes the door to employment instead of opening them and would rather not. This is represented in the quote:

> *"Most of the time, I did not even mention that I had a vision impairment, and I generally get away with them even not realizing; Once I have the job, if necessary, I would mention it, but a lot of the times I didn't again."*

Employers need to be open to listening to this population and follow up at every step of their involvement in the organization. This is depicted in the quote:

> *"So, I think a good idea would be for employers to be more comfortable with having a dialogue. The minute an interviewer perceive the lack of vision, that becomes the end of the interview."*

> *"And just like consistently like asking like, hey, what do you need? Is this working? And also, just thinking like, oh, I know this, this actually is written, but not Braille. Now they they've started Braille, like the vending machines."*

Hence, employers who want to commit to having and engaging PVI in their organization must be willing to have a dialogue and not just communicate with this population. Dialogue is a sustained conversation where both parties exchange ideas to achieve a common goal. However, a mere communication does not engage both parties. The purpose of having a dialogue is to clearly understand the abilities of a PVI, their skills, their individual-specific adaptation needs and resolve any doubt. Inclusion plan with a preconceived idea of the needs of PVI, rather than consulting with them is often ineffective because these population better understands their needs and challenges.

> *"So, I think it's really important for them to have dialogue, and for that dialogue to stay open because a person may not have a very good idea of the adjustments that need to be made until they're actually in the environment and maybe have been working in it for a while."*

Managing Disability Bias and Privileges

Managing bias and privileges defines the controlling tendency to believe that some people and ideas are better than others. Organizations often allow the preconceived or subconscious belief that individuals with vision disabilities are less productive to affect their operations, without implementing an equity strategy or the plan to address this issue. There is a lack of equity, and the sighted population tends to have an unfair advantage. This is represented in the quote:

> *"They want employees that can work just as fast as anybody else. Suppose you have somebody who's visually impaired versus sighted and has the same capabilities and skills.*

In that case, they're likely to go with somebody who sighted because they don't have to make the accommodations."

In most cases, PVI do not receive recognition in the diversity plan. This is represented in the quote:

"When people are hired, there is training on values, ethics, diversity, and equity, one of the public service values. There was no training or talk about people with disability, or how to incorporate them into the workplace."

Organisation's declaration for inclusiveness and diversity was believed to be more based on legislative reasons rather than a practice. Organisations were said to have leveraged on self-disclosure during the employment process to get their statistics in favour of the legislation on disability inclusion. This is as presented in the quote:

"My experience has been that organizations claim to be inclusive are for legislative reasons. They have to make these statements, but not as to how they act, how they are acted upon. In recent times what I have noticed is that on some websites, they encourage people to self-identify because of the legislative requirements. And they say you can do it on your resume, or you can do it by separate email. Or if there is an online application you can mention it in online application. So, I think it's a lot easier now to self-identify. What happens is that it's very it's very much tied to statistics because organizations are, as I mentioned, governed by legislation."

Furthermore, the expectation and productivity measure of a PVL should be based on their level of impairment.

"Manage expectations both of your current staff and of your new employees. Maybe you know, in the first six months, this new person with vision loss might not be as fast as a sighted person coming into the same job." (employment domain expert)

Performance statistics was also identified as a major concern for organisations. Performance evaluation for PVI was reported to follow same criteria as the sighted individuals, as performance measure form do not often include disability. The provision of assistive devices or

accommodation was assumed to commensurate speed or performance level as the sighted individual. Hence the same parameters used for the sighted are used for PVI, leading to premature loss of employment. This is depicted in the quote:

"The big problem is reconciling performance with statistics. Because in some organizations the policies say that if you have the equipment that allows you to do the job. For instance, if you have a, if text to speech, your performance should be the same as somebody who does not have impairment. But it doesn't consider training. Slowness, other aspects of performance".

In addition, performance evaluation team are not aware of the functional needs of PVI and could in some cases evaluate performance based on their broad knowledge of disability. This is represented in the quote:

"Like where I was before you can get a different department to come in for evaluation, but the people who are coming in don't particularly know vision loss, they know disability in general. And the recommendations are not customized enough for people with vision loss. They are quite generalized."

Managing Differences

An understanding of the peculiarity of different types of disability, as well as the associated challenges with each disability will better guide integration process. The participants from both groups reported that a blanket adaptation or inclusion plan approach was ineffective. This is represented in the quote:

"Well, when it comes to hiring and having as your employee anybody with a disability, I think there are some generalities, and there are more specific ones when it comes to the visually impaired" (employment domain expert).

While some strategies apply to all, there is still a place for individuality. As organizations embrace diversity, there must be an understanding of the point or ways in which people or things are not the same, even within the same disability group. Concerning personality, a clear distinction between the individual and their impairment needs to be made. This is represented in the quote:

"You know what I mean. I feel like we can do everything that everyone else can do. But we just do. I just do it a little bit differently."(employee with visual impairment).

An impairment does not define the individual; hence the focus should be less on the impairment and more on the person.

Operation

Operation is in the context of how an organization acts, processes, or manner of functioning. Employees with visual impairment highlighted that most establishments were mostly retrospective in creating an inclusive environment. This practice is closely associated with the lack of established or executed adaptation and inclusion strategy. This is depicted in the quote:

"The problem always comes when organizations try to address those accessibility problems, like retroactively, rather than ensuring that all documents are accessible, job post applications are accessible from the start. Trying to address barriers that arise when an applicant/employee raises them."

An inclusive work environment was identified to come with its trials, which can only be resolved with a firm resolution and doggedness. This is represented by the quote:

"It's a super long process, and you can't give up. You have to have a plan. You have to keep going and find people around you that will sustain you on the journey. Because you can't change culture alone."

Hence, organizations must establish a state of physical and mental readiness. Away from having policies, being open or aware of inclusion and diversity, the know-how and appropriate integration is imperative. This is represented by the quote:

"Do you want to actually have a diverse group of people who work with you? Or do you want to just check a box? So, the challenges is part of the cost of being in operation."

Bureaucracy, especially in, but not limited to, government was also identified as restricting because of the time spent taking responsibility and providing necessary accommodation. This is represented by the quote:

"I guess one of the more challenging parts is the level of bureaucracy. That's part of why things take so long to get done because it has to go through many different levels of approval. And so sometimes, something as simple as a screen reader, the need for an office with a closed door, will take a whole team to figure out who is responsible."

Proactiveness, flexibility, and creativity in the mode of operation are principal elements for inclusive functioning that must be imbided in an organization. They offer productivity, time, and cost-benefit. This is represented by the quote:

"And along in this plan, you have to adapt the work processes, you have to be creative in terms of work processes, and sometimes it's bigger than that person's job. How can you reorganize the work process? So that the person that you're hiring becomes an asset to the company and helps the company. It has to be a two-way street, companies helping the person with the impairment, and they also help the company."

Effective Policy implementation

The series of activities undertaken by organization to achieve the goals and objectives articulated in policy statements has been identified to be as important as having the statement. Our study identified the existence of policy within the organization was not necessarily the challenge, but an understanding of what the policy means and its enactment. This is depicted in the quote:

"You can have an inclusion policy, but if you don't adapt your website, for example. It doesn't mean anything."

An understanding of the policy was also questionable, as there was no commensurate action plan to confirm the existence of the inclusion policy within the organisation.

"I don't think the workplaces are really ready to include diverse people of all kinds. They have the discussion-like everybody wants their diverse workplace. Everybody wants to hire more diverse people, but I don't think they really know what that includes like, what kind of change do you really want to go on with?" (employee with visual impairment).

3.0.3. Collaboration

This third category describes the scenario of two or more people or organizations working together to achieve a common goal. This category is defined under the Partnership and monitoring & evaluation theme.

Partnership

A partnership can bridge the knowledge or competency gap in dealing with PVI or provide necessary accommodation by leveraging stakeholders with a common interest. This could be the expert utilization of a person or organization with a comprehensive and authoritative knowledge of or skill in this area and an organization offering financial provision (e.g., government) to promote inclusion. This is depicted in the quotes:

"Well, we have partners. So, we go out and say, How can we do the best for that person? Is that possible? Is that not possible? So, looking at the different alternatives to do the work, looking at the assistive technology that could be put in place for that person from that person's experience and also from the professional experience."(Employment domain experts).

In addition, employee with visual impairment highlighted that medical report was always sorted to valid that ocular status however, it does not often explain the function difficulty associated with their condition for employers to understand. This is represented in the quote:

"It was pretty painful because it was a new experience for everyone around me. I have to get documentation from Medical people in the eye care sector. And that was not always easy to acquire. They were not expressing in my condition in a way managers can understand. So that took some work."

Collaboration success depends on the genuine interest in PVI, acknowledgment of insufficiency, and the need for help through collaboration. This is depicted in the quotes:

"You need the organizations that would be hiring, the government that has the money, and the rehab that has the expertise. You need to get these three players sitting down at the table, and it's easy to find the champion in the rehab center." (Employment domain experts).

Monitoring and Evaluation

This process involves collecting and analyzing data or events to measure progress toward achieving specific goals and objectives. It entails an evaluation of the workplace, the technology – assistive devices and software, strategies, and policy, among others. This is depicted in the quotes:

"It's continual, constant monitoring and constant adjustments along the way, so it's not one and forget. It is a long-term investment as opposed to a short-term investment. But it pays off in the long run for everybody".

A significant challenge to inclusion was the loss of accessibility as upgrades or innovations were made to specific systems or software. Therefore, monitoring and evaluation are crucial determinants for inclusion sustainability. This is depicted in the quotes:

"I think, and as we become more creative, we miss information. Sometimes coming back to the basis - black and white or something like that makes sense for accessibility. We have more possibilities to lose the accessibility, as we tend to be creative."

4.0.   Discussion

The purpose of this study was to gain insight into aspects of employment environment preparedness needed to hire a person with vision impairment, through the shared experiences of employees with visual impairment and employment domain experts.

The participants' sincerity and openness to sharing their experiences was an interesting and noteworthy experience. Employees with vision loss acknowledge that some PVI are indeed not skilled to gain certain jobs, and some even portray some lackadaisical attitude to work even when offered such opportunity. Similarly, the employment domain experts shared great insight into areas of challenge along the inclusion journey. Our results reveal that the core aspects of employment environment preparedness are not solely the tangible things like physical location or assistive devices. Likewise, the intangible (non-physical) quality, such as support, willingness, and collaboration predict the availability or even the provision of a prepared environment to welcome PVI.

Previous studies on visual disability have highlighted employers' negative hiring behavior as a hindrance to employment success (27,28). Our findings are in line with a study conducted by Michele at al., (29). These outors set out to determine the predictors of employer's attitude towards PVI. They associated employers' attitude to previous experience of employing PVI, communication with the vocational rehabilitation agency and having knowledge about this population. Employers who had more experience or prior knowledge had more expertise and were willing to proceed with inclusion of PVI. However, our findings indicated that even with this experience, the employers could be hindered when the top management authority do not seek to be inclusive.

Furthermore, our study identified that the influence of experience, and knowledge about visual impairment also determines how other sighted colleague would interact with this population and foster inclusion in workplace. This observation is similar to previous findings indicating that most sighted colleagues do not understand what it takes to work next to PVI; this ignorance leads to agitation and unconscious discrimination (30) which could translate into an uncomfortable environment to work. A way to compensate for this inexperience is education and training on inclusive communication, and this intervention corresponds to the finding from a previous study (31) on the impact of a brief meeting between a vocational rehabilitation professional and an

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employer. The result from that study indicated that the employers' attitudes toward and intent to hire people who are blind or visually impaired increased. However, this increase in intent to hire was not retained at 4-month follow-up, which indicates that ongoing contact is needed, hence the need to maintain relationships through collaboration as identified in this current study. It is therefore imperative to reduce the uncertainty about how to relate with PVI, to reduce the influence of an attitude perceived as unfair and exclusive.

According to McDonnell (32), rehabilitation counselors have more negative perceptions of employers' attitudes toward hiring PVI than providers who identify themselves as business relations staff. On the contrary, our study indicated that rehabilitation professionals were willing to collaborate with employment organization to facilitate the inclusion of PVI into their workplace.

Golub (4) identified the fundamental steps employers should take for successful work experience for visually impaired employees. They include the establishment of core values, provision of required tools, accessibility and accommodation, transparency, establishing the right attitude, and expectation of equal performance. While these are consistent with our findings, availability of support from top management, willingness to dialogue and create an adaptive environment were identified as priority steps towards inclusion.

This study highlights a mismatch between the implemented work practices of organizations and those required for inclusion. Showmanship has been identified as a common practice when it comes to the employment of PVI. This practice could be closely linked to workplace advocacy for Equity, Diversity, and Inclusion (EDI). Hence, though organizations claim to have policies to show their commitment to EDI, it is not always understood or practiced. It is common practice of *talking the talk* of policy, rather than *walking the walk* in most organizations. Therefore, even though some employment domain experts described their organization as inclusive, some EVI reported that they do not experience a sense of inclusion in their workplace. Their adaptation needs are not met or are poorly met; many tasks remain inaccessible, and workplace culture is not in their favor. Hence policies should constantly be evaluated for effectiveness.

Previous studies have identified employer's safety and mobility concerns (33) as barriers to employing PVI. According to this current study, certain employers have tackled this issue by partnering with rehabilitation professionals, to provide workplace mobility training, conducting safety and evacuating training installing security systems that are accessible to people with various disabilities, and appointing sighted guides for emergency situations. Both groups recognized the

benefits of designing a workplace with inclusivity in mind, to be more adaptable and cost-effective. Conversely, modifying an existing workplace to make it more inclusive is often more difficult, time -consuming, and expensive, which could potentially discourage employers from welcoming PVI.

A study (11) conducted to access the assumptions and gaps in reasonable accommodation requirement for PVI revealed that the modification of working environment and facilities, making information accessible, modification in job procedure, restructuring work systems and provision of job training are effective accommodation plans. Yet, such practices are almost non-existent, and a major gap still exists in the implementation. Our study provides a similar finding, accommodation and accessibility challenge still persist in the workplace. Factors such as indiscriminate acquisition of inaccessible software, lack of early inclusion strategy, a *one-size-fits-all approach* to provision of assistive technology, and cost implication were limitations to effective accommodation. To ensure effective accommodation, participants recognised the need to be intentional about accessibility testing of all software before procurement, as well a constant monitoring and evaluation of inclusion plan, strategies and devices.

Previous studies also emphasized the cost of creating an inclusive environment or the productivity implication of working with PVI (13,33) as another barrier employment. The findings from this study revealed that financial implication can be reduced when inclusion is considered from the start, and also by leveraging on government incentives. In addition, our study also highlights that, aside from the cost implication associated with including PVI, they often make better staff in a favourable work environment. Retention rate was said to be higher among this population than the sighted colleague.

Another core aspect of preparedness identified in this study is willingness, which in this context differs from openness. While both describe a state of curiosity or acceptance, willingness is backed up with action. From the EVI perspective, *dialogue* was identified to have a non-negotiable place in the preparedness journey for its role in breaking stereotypic mindset, communicating the need of the person with vision loss and the employment concern of a person with vision loss. The opportunity for dialogue must be present from the start of the employment journey- the recruitment phase and should remain open throughout the employment journey. Our study aligns with a previous study (28) that identified self-disclosure of vision loss as a hindrance

to employment. Nevertheless, our findings recognized that the willingness to converse with PVI was vital to resolving this pattern.

Partnership with experts or professionals in creating an inclusive workplace is another significant factor that facilitates preparedness and employment of PVI. This is consistent with the recommendation from a scoping review study (Article 1) and the findings from previous research (34,35). Partnership for human and financial resources is imperative for a sustainable inclusion journey. Nevertheless, organizations should also collaborate with employees with lived experience of vision loss, who are experts in this journey. Furthermore, collaboration should also be extended to all employees and members of the organization during the monitoring and evaluation of inclusion plans to assess the effectiveness or possible adjustment of established procedures.

Implications for rehabilitation & employers

Rehabilitation service and professionals are an essential part of employment success for PVI. Studies have identified how communication with vocational rehabilitation professionals influenced employers' perception towards employing PVI, as well as the implication of the lack of follow up practice (13,33,35,36). It is therefore crucial for these professionals to extend their scope of duty beyond the preparedness of PVI for activities of daily living or employment. They are an indispensable support for the employment environment as well. The present study also provides a reflection piece for employers to evaluate their inclusion practice and strategy. While it is great to consider inclusion, it is more crucial to understand the basis upon which effective inclusion strategies are built. Employers should improve their preparedness and should be willing to embrace and collaborate with relevant authorities as they would in other aspect of their business.

Limitations of study

The majority of participants in this study were mostly from the government sector, thus there was no adequate representation of both experiences in the private sector. Furthermore, while this study seeks to have an equal representation of both group of participants across different sectors to gain insight into the specificity of challenges in Canada, it is mainly representative of the Quebec context and rehabilitation sector. Exploring a diverse pan-Canadian group of participants or organization during the recruitment process could help to address these challenges.

Future direction

These research findings will be used to develop a Tool for the Assessment of Employment Environment Preparedness (the people, the place and the policy). In turn, that measurement can then facilitate the necessary change and adaptations to make the employer better prepared to welcome PVI. Future research will need to validate more evidence-based solutions as utilized in a previous study (5) to facilitate a translational problem-solving approach to address unemployment concerns among PVI. Future research should also explore the peculiarity of preparedness needed across certain sectors, and locations, to better understand what resources (human, financial, technological or mental) favour preparedness plans better. This study echoed the lack of awareness about implementation practice as barrier to inclusiveness, hence the development of a training module or information guide peculiar to the inclusion of PVI should be explored to bridge this knowledge gap.

5.0. Conclusion

Creating a welcoming work environment for PVI can only be achieved with appropriate leadership, intentionality, collaboration, adaptation, training, effective communication, hard work, and flexibility to change. No effective change can happen in isolation. Successful integration of a PVI into employment should begin at the initial planning of an organization. Inclusion should not be perceived as a complement to an organization or in seclusion as a term specific to PVI, but rather seen as a crucial foundation for which a successful organization is built. This proactiveness will reduce the cost implication often ascribed to inclusion.

PVI are an untapped resource, and investment in including this population is proportional to a long-term benefit, nullifying the supposed financial implication. A distinction must be made between the person and their impairment. While it is okay to acknowledge the limitation of an impairment, they do not seek pity but equity. The significant challenge for creating an inclusive workplace remains the ignorance and lack of experience with the abilities of this population. Only when chances are taken can actual experiences be obtained. There is a need for publicity and role modeling. Early education from the basic educational level should also be considered to raise a generation of people who see the ability of PVI and working with them as a norm.

Intentionality about flexibility, inclusion, and accessibility of all products across all organizations should be encouraged. Product validity and procurement plans should include accessibility testing to reduce this burden during employment integration. Private and government enterprises must put more effort into making the employment environment and employment system inclusive of PVI. A prepared employment environment is crucial to employment success and addressing the high unemployment rate of PVI. Successfully integrating a PVI into the workforce will help create a better life for them and make the world a better place. (37)

General Discussion

This thesis investigated aspects of employment among PVI, focusing on the employment environment as a major determinant of employment success. The preparedness of the employment environment, which involves the people, the workplace, and policy, was explored in great depth to offer a practical approach to how an organization can be truly inclusive of PVI. The aspects of employment environment preparedness described in this study originate from previous research (Scoping review), the lived experiences of PVI, and employment domain experts. Our findings across both studies have identified that, while disability inclusion laws or rights exist, they do not necessarily foster inclusion. They may open employment doors for PVI but do not guarantee their well-being or sense of belonging in the workplace. The preparation of an inclusive employment environment cannot be over-emphasized. It is a necessity even from the establishment of the organization. Our findings have identified inclusive design from the start to be more accessible and cost-effective, and to often encourage a more inclusive workplace. Primarily, non-tangible variables foster preparedness for the employment environment more than the physical provision of specific technology, devices, and predesigned workstation.

Our findings indicate that social support is crucial to preparedness and continuous inclusion practice. However, social support is not only associated with providing assistive devices or inclusive job offers. Social support begins with a genuine willingness to be inclusive rather than legislative compulsion. The need to prioritize dialogue can often drive individual-specific accommodation and providing assistive devices. It is necessary to seek collaboration and expertise to create an environment of belonging. Our findings also suggest that practical social support is driven by the organization's leadership and not just by the statistics of PVI employed in the organization. This finding is consistent with a previous study (38) that identified leadership as a prerequisite to developing a diverse team in which different team members are valued for what they bring to work practices.

Earlier research (39) shows that at least one-third of nonworking people with disabilities reported a lack of transportation and an inaccessible workplace as employment barriers. Workplace accommodations, such as help with transportation, and flexible work schedules, could address these barriers. Adopting a practice of flexible job options or accommodation practice are all examples of support promoted by the aspects of employment environment preparedness (willingness, understanding of disability differences, and bias) earlier identified.

Furthermore, experiences and education are vital as influencing factors for how inclusive an organization can be. Ending the idea that a person with vision impairment should work twice as hard as the sighted is imperative (40). The burden to succeed in the workplace should not be the sole burden of a person with vision impairment.

Our findings show that a noteworthy challenge in the workplace is the acquisition of ineffective technology, inaccessible system, and means of communication. This practice was attributed to the lack of education, awareness, and inexperience working with PVI. To experience inclusion, individuals need to feel they belong to the group, meaning that each team member is treated as an insider while having the opportunity to sustain and express their unique identities (38). Hence education is a tool to be embraced formally through lectures or collaboration and experienced by adopting knowledge translation practice. In addition, appropriate performance evaluation will better reflect the actual productivity of employees with a disability and promote understanding of working with PVI.

Conclusion

As the future of work evolves with innovations, a sense of preparedness is a means to effectively leverage and build a more inclusive workplace to ensure that PVI are not excluded from the innovation that could benefit them. Therefore, the employment environment needs to fully understand what inclusion means to them, audit their current level, and commit to creating, monitoring, and sustaining inclusive practices alongside other development plans. This proactive approach will facilitate the sustainable employment of PVI and reduce the cost implication of redesigning the work environment and systems. The findings documented in this thesis have provided insights that will facilitate the content development and eventual validation of a **T**ool to **A**ssess the **P**reparedness of the **E**mployment **E**nvironment to hire PVI (The employer's version of the T.A.P.E measure).

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Tables

Table 1: Example of the search strategy for the PubMed Database

Visually impaired employee or Vision disorders	((vision [Title/Abstract] OR visual*[Title/Abstract]) N1 (disorder*[Title/Abstract] OR impair*[Title/Abstract] OR disab*[Title/Abstract] OR disturbance*[Title/Abstract] OR rehabilitat*[Title/Abstract] OR handicap*[Title/Abstract]))
	((Low [Title/Abstract] OR reduced [Title/Abstract] OR Subnormal [Title/Abstract] OR Sub-normal [Title/Abstract] OR Diminished) N1 (Vision? [Title/Abstract] OR visual*[Title/Abstract]))
	(Blind [Title/Abstract] N1 (person*[Title/Abstract] OR individual*[Title/Abstract] OR man [Title/Abstract] OR men [Title/Abstract] OR woman [Title/Abstract] OR women [Title/Abstract] OR adult*[Title/Abstract] OR people*[Title/Abstract] OR employee*[Title/Abstract] OR staff*[Title/Abstract] OR worker*[Title/Abstract]))
	(Hemianopsia*[Title/Abstract] OR blindness*[Title/Abstract] OR visual Aid*[Title/Abstract])
	((legal*[Title/Abstract] OR congenital*[Title/Abstract] OR organic* [Title/Abstract]) N1 blind*[Title/Abstract] OR blindness *[Title/Abstract])
(AND) Preparedness	(Prepared*[Title/Abstract] OR readiness [Title/Abstract])
	Disability evaluation*[Title/Abstract]
	Personnel Management*[Title/Abstract]
	(Work [Title/Abstract] N1 (standard*[Title/Abstract] OR guideline*[Title/Abstract]) OR capacity*[Title/Abstract]))
(AND) Employment Environment	(workplace*[Title/Abstract] OR worksite*[Title/Abstract] OR Unemploy*[Title/Abstract])
	(ergonomic*[Title/Abstract] OR engineer*[Title/Abstract] OR design [Title/Abstract] OR aids[Title/Abstract] OR aid[Title/Abstract] OR rehabilitation[Title/Abstract] OR build*[Title/Abstract] OR equip*[Title/Abstract])
	(employment [Title/Abstract] OR employer*[Title/Abstract] OR labor[Title/Abstract] OR occupation*[Title/Abstract] OR career[Title/Abstract])

	("return to work"[Title/Abstract] OR "return-to-work"[Title/Abstract] OR "back to work"[Title/Abstract] OR "back-to-work"[Title/Abstract])
	(telework*[Title/Abstract] OR ((flexibl*[Title/Abstract] OR remote*[Title/Abstract]) N1 work*[Title/Abstract]))
	(precarious*[Title/Abstract])
	(independen*[Title/Abstract])
	(functioning [Title/Abstract] OR performan*[Title/Abstract])
	TI= (work NEAR/1 (environment$ or place$ Or location$ Or site$)) OR AB= (work NEAR/1 (environment$ or place$ Or location$ Or site$))

Table 2: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. Studies related to persons with only visual impairment	1. Studies other than on visual impairment
2. Studies related to employment, employer and employee, and their experiences	2. Studies other than on employment
3.Study population with visual impairment irrespective of their age	3. Studies with no available full text
4. Studies related to vocational rehabilitation	4. Studies other than English language
4. Studies from all countries	
5. Studies related to work standard and Policy	
6. Study related to accessibility and inclusion	

Table 3: Summary of peer-reviewed sources on visual impairment and employment

Article	Author	Journal Details	Location of Study	Study design	Study Population	Number of participants	Aim of study
Employment chances of recently visually impaired, young, or middle-aged adults in the Swedish labour market	Jeppsson-Grassman, 1989	International disability studies	SWEDEN	Qualitative Interview design	aged 25–45-year People with visual impairment	152 men and 109 women; mean age at onset 34 years, standard deviation 5.87	The study focused on employment chances of Swedish visually impaired persons aged 25-45 years at the onset of their visual impairment, and who were employed at that time.
Development of a tool for the assessment of employment preparedness specifically for persons who are blind or partially sighted	Shaw et al., 2011	Work	Canada	Qualitative Design (Phone Interview and Online)	18 to 64 years of age, blind or visually impaired (In the labour force or will to enter the labor force)	239 Participants	To develop a psychometric tool to assess preparedness for employment for persons who are blind or visually impaired.
Unemployment and under-employment in adults with vision impairment: The RVIB Employment Survey	McCarty et al., 1999	Australian and New Zealand Journal of Ophthalmology	Australia	Qualitative Interview design	247 participants aged 19 to 59 years. 48% male. 148 employed and 99 unemployed.	250 people participated	To describe the labour force status in Victorian adults with vision impairment and any factors associated with unemployment and under-employment.
Transition strategies for youths with sensory impairments: Educational, vocational, and independent living considerations	Luft et al., 2001	Work	USA	Not specified	People with visual impairment, professionals working with this population.	Not applicable	This article examines important educational and vocational characteristics of this population to assist rehabilitation professionals in supporting more effective transitions into employment and other adult roles.
A Second Look at Factors Associated with Employer Hiring Behavior Regarding People Who Are Blind or Have Low Vision	McDonnall et al., 2019	Journal of Visual Impairment & Blindness	USA	Quantitative survey	Hiring Managers across different company size	388	To investigate factors associated with employer hiring behavior regarding people with visual impairments, including the opportunity to hire

Title	Author/Year	Source	Country	Study Type	Sample	N	Aim
Employment and disability: The quest for work by blind Israelis	Deshen, 1999	Journal of Visual Impairment and Blindness 1990	Israel	An anthropological field study of 17 months' duration	57 individuals of working age who were blind prevocationally.	57	Not applicable
Strength in numbers: Creating employment consortia to assist people who are blind and visually impaired to secure jobs	Candela et al., 2002	Rehabilitation and Education for Blindness and Visual Impairment	USA	Case Study	direct service employment specialists	two consortia that consist of individuals who assist people who are blind and visually impaired to secure employment.	To describe the activities of two consortia that consist of individuals who assist people who are blind and visually impaired to secure employment.
Job-Search Activities, Job-Seeking Barriers, and Work Experiences of Transition-Age Youths with Visual Impairments	Cmar et al., 2021	Journal of Visual Impairment & Blindness	USA	Longitudinal quasi-experimental study (Survey)	88 youths with visual impairments age 15–22 years	88	to describe the job-seeking and work experiences of transition-age youths with visual impairments
Eyes on the workplace	(Cowen, 1986)	A report: Based on proceedings of a Conference Working Group on Aging Workers and Visual Impairment (Washington, DC, February 1986).	USA	Not applicable	Not applicable	Not applicable	Not applicable
Career and College Readiness: A Summary of Two Sessions at the AFB Leadership Conference on Orientation and Mobility and Transition Services for Students with Visual Impairments	Danaher, 2019	Journal of Visual Impairment & Blindness MAR-APR DOI: 10.1177/0145482X19847046	USA	Delphi study (conference presentation)	Teenagers with visual impairment	Not applicable	To validate the Orientation and Mobility Career, College, and Community Readiness (CCCR) Standard domains.

Predictors of competitive employment of VR consumers with blindness or visual impairments	Darensbourg, 2013	Journal of Vocational Rehabilitation 38 (2013) 29–34 DOI:10.3233/JVR-120618	USA	Retrospective population-based study	Individuals with blindness or visual impairments who have received services from state vocational rehabilitation agencies,	3,610 cases	To investigate the relationships among demographics and competitive employment outcomes of vocational rehabilitation consumers with blindness or visual impairments.
Placing visually impaired clients through temporary employment agencies and staffing agencies	Farnsworth, 1999	Journal of Visual Impairment & Blindness	USA	Narrative/ opinion piece	Rehabilitation Service provider.	Not applicable	To describe the importance of working with staffing agencies to improve employment opportunity for PVI.
Informed decision making on assistive technology workplace accommodations for people with visual impairments	Mandy et al., 2003	Work	USA	Retrospective population-based study	Cases from the JAN database that involve PVIs were examined	Not applicable	This article describes the five-step process for selecting appropriate AT (Assistive technology) for individuals with vision impairments in workplace accommodations developed by the Job Accommodation Network (JAN)
Career advancement for young women with visual impairments	Hutto et al., 1997	Journal of Visual Impairment & Blindness	USA	qualitative research study (interview)	Six successful female college graduates who are legally blind	case study of 6 participants.	To suggests interventions for maximizing the career potential of female adolescents with visual impairments.
Addressing employers' safety concerns about workers with visual impairments	Wolffe et al., 1998	Journal of Visual Impairment & Blindness	USA	A debated issue	Not applicable	Not applicable	To addressing Employers' Safety Concerns About Workers with Visual Impairments
Development and Adaptation of an Employment-Integration Program for People Who Are Visually Impaired in Quebec, Canada	Wittich et al., 2013	Journal of Visual Impairment & Blindness	Canada	Cohort study	Clients with visual impairment, who were neither employed nor in school were recruited to participate in the	Nine Clients	To develop and pilot-test an innovative approach in program design with the goal of improving employment outcomes and to supplement existing services at MMRC. (MAB-Mackay Rehabilitation Centre (MMRC, formerly the Montreal Association for the Blind and the Mackay Rehabilitation Centre).

						preemployment program	
Assessing the readiness of blind persons for vocational placement	Wilson, 1974	New Outlook for the Blind	USA (New York)	Narrative/ opinion piece	Not applicable	Not applicable	To explore the relationship between work to the psychological need of clients.
Making those who cannot see look best: effects of visual resume formatting on ratings of job applicants with blindness	Wang et al., 2010	Rehabilitation Psychology	USA	Between-subjects design, (Experimental design).	Experienced Human Resources personnel	249 participants.	To investigate the question of how individuals with blindness are perceived by prospective employers and the role that visual presentation of their credentials plays in initial evaluations of hire ability
Resolutions of ADA title I cases involving people who are visually impaired: A comparative analysis	Unger et al., 2005	Journal of Visual Impairment & Blindness	USA	Descriptive Case Study	Data were obtained from the EEOC's Public Information Division	Cases involving 3,294 people who are visually impaired (that is, are blind or have low vision) and compare the pattern to that of case resolutions involving all other people with disabilities (n = 186,468).	To examine the manner in which the Equal Employment Opportunity Commission (EEOC) resolves complaints of employment discrimination under the ADA by people who are visually impaired, both in absolute terms and in comparison, to case-resolution practices concerning all other ADA Title I complainants.

User needs evaluation of workplace accommodations	Williams et al., 2006	Work	Netherland	A user need Survey	People with impairment	510participants	To understand the needs of workers with functional limitations and the types of workplace accommodations commonly used.
A job-seeking skills program for persons who are blind or visually impaired	Ryder et al., 1995	Journal of Visual Impairment & Blindness	USA	Cohort study	Job seekers with visual impairment	Small group (No specified number)	To describes the methods used to help the participants increase their employability and discusses the characteristics of the program and the participants that influenced readiness for employment
A tool for helping workers identify their on-the-job accommodation needs	Rumrill, 1999	Journal of Vocational Rehabilitation	Netherlands	Interview based	Workers with visual impairment.		To help workers identify their on-the-job accommodation needs.
Individualized functional work evaluation and vision: a case study in reasonable accommodation	Robertson, 2011	Work	Canada	A Case study	A worker with visual impairment	A participant	To produce an individualized functional work evaluation.

A Study and Development of Workplace Facilities and Working Environment to Increase the Work Efficiency of Persons with Disabilities: A Case Study of Major Retail and Wholesale Companies in Bangkok.	Pruettikomon et al., 2018	Scientific World Journal	USA (New York)	Mixed research methods	120 participants who worked in the three major retail and wholesale companies. The participants were 30 physically disabled people, 30 who were visually impaired, 30 with hearing impairment, and 30 trainers of the disabled to identify problems, obstacles, and needs	30 participants with visual impairment	(1) To study the theories, issues of workplace facilities, and environments in existing offices and use the resulting information to develop guidelines for large retailers and wholesalers in Bangkok. (2) To design workplace facilities and environments for people with disabilities to reduce problems and work barriers and increase work effectiveness in department stores, retail and wholesale companies in Bangkok, using the principles of universal design. (3) To test the effectiveness of the design of workplace facilities and environments for people with disabilities in department stores, retail and wholesale companies in Bangkok.
Work environment of blind computer specialists in Japan	Nagaoka et al., 1997	Disability and Rehabilitation	Japan	Questionnaire based	Participant in this study were blind and braille users, and were employed as computer specialists	17 participants	To investigating the circumstances in the workplace of computer specialists with visual impairment in Japan through telephone interviews.

Employers' attitudes toward hiring individuals with visual impairments	Papakonstantinou et al., 2019	disability and rehabilitation	GREECE	Questionnaire based	Private sector employers	196 participants	This study examines: (a) the attitudes of 196 private sector employers toward hiring individuals with visual impairments and (b) the impact of the employers' individual characteristics (age, gender, and educational level), attitudes toward visual impairment, social contact with them, and the form of business entity on their attitudes toward hiring such individuals.
The Effect of Career Mentoring on Employment Outcomes for College Students Who Are Legally Blind	O'Mally et al., 2016	Journal of Visual Impairment & Blindness	USA	A longitudinal experimental study	People and mentors with visual impairment.	77 Participants	The study provides the first empirical evaluation of the effectiveness of a career mentoring program for legally blind college students.
Impact of low vision on employment	Mojon-Azzi et al; 2010	Ophthalmologica	11 Europe Countries	Retrospective population-based study	Based on data from the Survey of Health, Ageing and Retirement in Europe (SHARE). 31,115 individuals in collected in 2004 in 11 European countries and in 2005– 2006 in Israel.	Data collected from 31,115 individuals	To investigate the influence of self-reported corrected eyesight on several variables describing the perception by employees and self-employed persons of their employment.
The Americans with Disabilities Act: Emerging issues for ophthalmologists	Blanck et al., 1994	Ophthalmology	USA	Descriptive Case Study	Ophthalmologist	Not applicable	To help ophthalmologists understand the impact of the ADA's employment provisions on people with visual impairments and their potential employers.

Title	Author	Journal	Country	Study design	Population	Sample size	Purpose
Employment lifestyle training: A new approach to vocational rehabilitation teacher services	Bowman et al., 2007	Rehabilitation and Education for Blindness and Visual Impairment	USA	Retrospective study	Not applicable	Not applicable	To discusses changes that the Texas Division for Blind Services made in its vocational rehabilitation program to increase competitive employment opportunities for vocational rehabilitation consumers who are blind and visually impaired.
Job-Readiness Programs Are Foundational to Successful Employment Outcomes	Farrow et al., 2019	Journal of Visual Impairment & Blindness	USA	Cohort study	People with impairment	84 participants	To explores one agency's program to provide job-readiness skills for individuals who are visually impaired.
Legal blindness and employment in patients with juvenile-onset macular dystrophies or achromatopsia	Fishman et al., 1998	Retina	USA	Questionnaire based study	People with juvenile-onset macular dystrophies or achromatopsia r	52 participants	The Purpose of the study is to gain information about the employment status of legally blind patients.
The relationship of personality traits to the employment status of persons who are blind	Hagemoser et al., 1996	Journal of Visual Impairment and Blindness	USA	Questionnaire based study	People with visual impairment who had been employed full time for at least two years and Group 2, who had been unemployed for at least two years.	118 subjects	To determine how the personality characteristics of individual blind persons relate to their chances of employment.
The missing link: Real work experiences for people who are visually impaired	Hanye, 1995	Journal of Visual Impairment and Blindness	USA (New Jersey)	Not applicable	People with visual impairment	Not applicable	To help visually impaired individuals who are seeking to enter or reenter the work force by providing instruction in self-awareness, vocational exploration, resume writing, grooming, interview skills, and follow-up procedures.

Becoming a blind teacher in Turkey: A long journey	Koca-Atabey, 2016	Work	TURKEY	Narrative study	A blind teacher	1	To provide a narrative of the journey of a visually impaired 35-year-old man towards becoming a teacher.
Effectiveness of a business development training for rehabilitation counselors who work with consumers who are blind or visually impaired	Michele C. McDonnall, PhD1 and Zhen Sui, PhD	Rehabilitation Counseling Bulletin	USA	cross sectional study	80 counselors and counselor supervisors	80 Participants	To evaluate the initial effectiveness of a business development training for rehabilitation counselors who work with consumers who are blind or visually impaired.
The Relationship Between Perceived Computer Competence and the Employment Outcomes of Transition-aged Youths with Visual Impairments	Zhou et al., 2013	Journal of Visual Impairment & Blindness	USA	Longitudinal transition study	Data on 200 in-school youths and 190 out-of-school youths with a primary disability of visual impairment	390 participants	The study reported here explored the relationship between the self-perceived computer competence and employment outcomes of transition-aged youths with visual impairments
Barriers to employment identified by blind and vision impaired persons in New Zealand.	La Grow et al., 2005	Social Policy Journal of New Zealand	New Zealand	Interview based	95 participants with vision loss aged 18 and 64, with 59 has employed and 36 were not employed.	95 participants aged 18 and 64, with 59 has employed and 36 were not employed.	To identify the barriers to employment experienced by blind and vision-disabled people in New Zealand, and to gather suggestions for ways of overcoming those barriers from those most affected by them.
Workplace Discrimination and Visual Impairment: A Comparison of Equal Employment Opportunity Commission Charges and Resolutions Under the Americans with Disabilities Act and Americans with Disabilities Amendments Act	Callie et al., 2017	Journal of Visual Impairment & Blindness	USA	cross-sectional retrospective database analysis	Not applicable	Not applicable	To identify where to focus resources regarding specific aspects of employment based on perceived discrimination and outcome resolutions from individuals with visual impairments.

Geographic Variation in Employment for U.S. Adults by Visual Impairment Status	Tran et al., 2022	Journal of Visual Impairment & Blindness	USA	Retrospective population-based study	2016, 2017, and 2018 BRFSS survey participants aged 18–64 years	Not applicable	To determine whether contemporary employment rates for U.S. adults with and without visual impairments differed at the national, regional, and state levels.
"Employment Is Everyone's Job": An Important Reminder for the Field of Visual Impairment	McDonnall, 2022	Journal of Visual Impairment & Blindness	USA	Opinion piece	Not applicable	Not applicable	To addresses many of the key barriers to employment for individuals with visual impairments.
Turning a blind eye to employers' discrimination? Attitudinal barrier perceptions of vision impaired youth from Oslo and Delhi	Chhabra, 2021	Disability and Society	Oslo, and Delhi	Exploratory case study(interviews)	Young Adults with visual impairment	12 from Norway based in Oslo and neighbouring cities and 17 from India based in Delhi and neighbouring cities)	To compare previously un-researched employment barrier perceptions within the labour market encountered by YAVI while accessing employment opportunities.
Changing Employers' Implicit Attitudes About the Competence of People Who Are Blind	McDonnall et al,2022	Journal of Visual Impairment & Blindness	USA	Experimental Study	Hiring managers and vocational rehabilitation professionals	57 hiring managers, Two VR professionals, one sighted and one blind,	To examine the impact of a meeting between a vocational rehabilitation (VR) professional and a hiring manager on these beliefs, or implicit attitudes, about the competence of people who are blind.

Figures

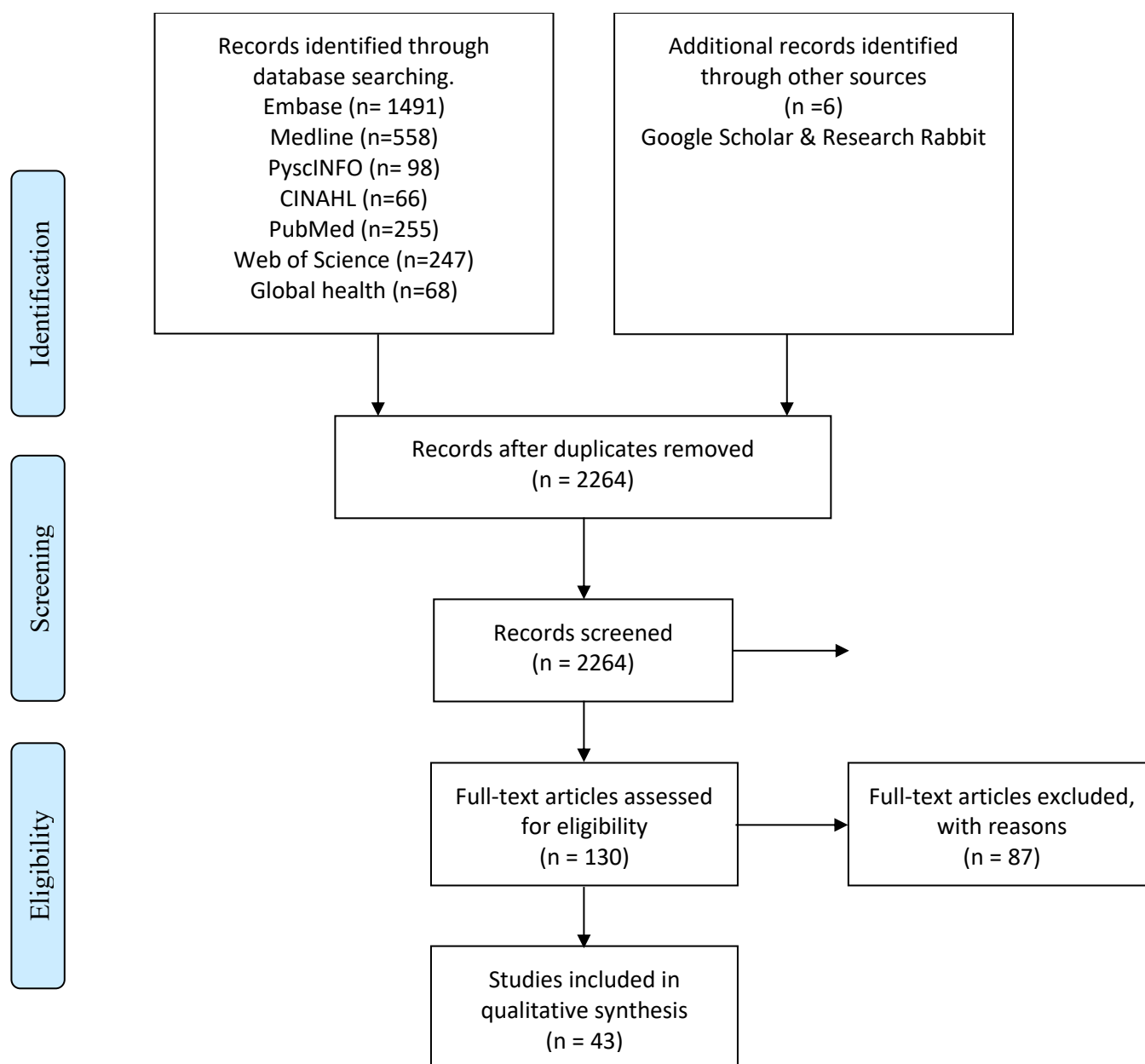**Figure 1: PRISMA flow diagram of included and excluded studies**

Figure 2: Process of Employment Integration Success Among People with Visual Impairment
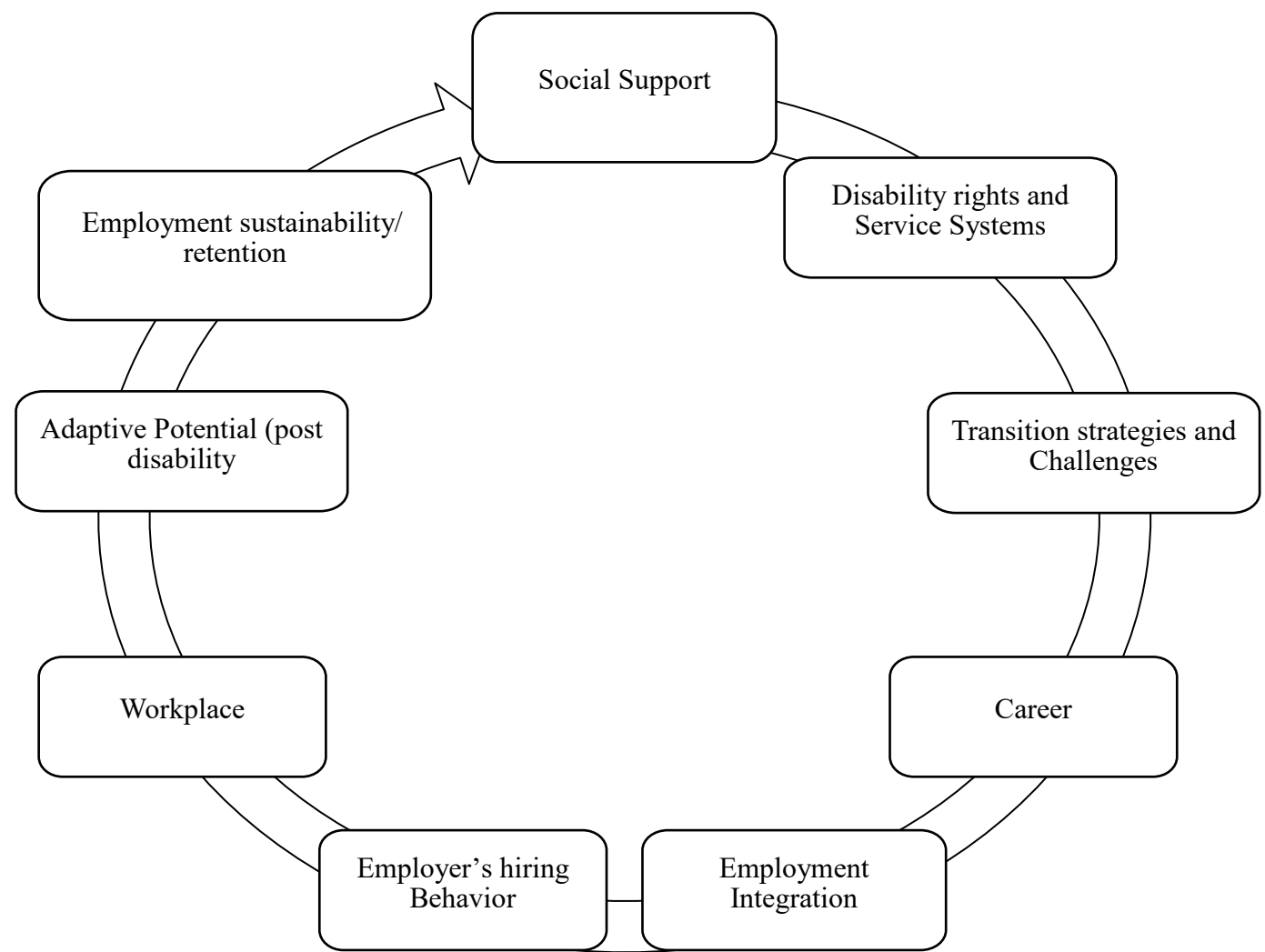
Figure 3: Aspects of Employment Environment Preparedness.

Leadership

Experience, Education and

Resource

Adaptive

Access to Technology

Partnership

Support

Willingness

People, Place, and Policy

Collaboration

Dialogue

Managing Bias and Privileges

Effective Policy

Managing Differences

Operations

Monitoring and Evaluation
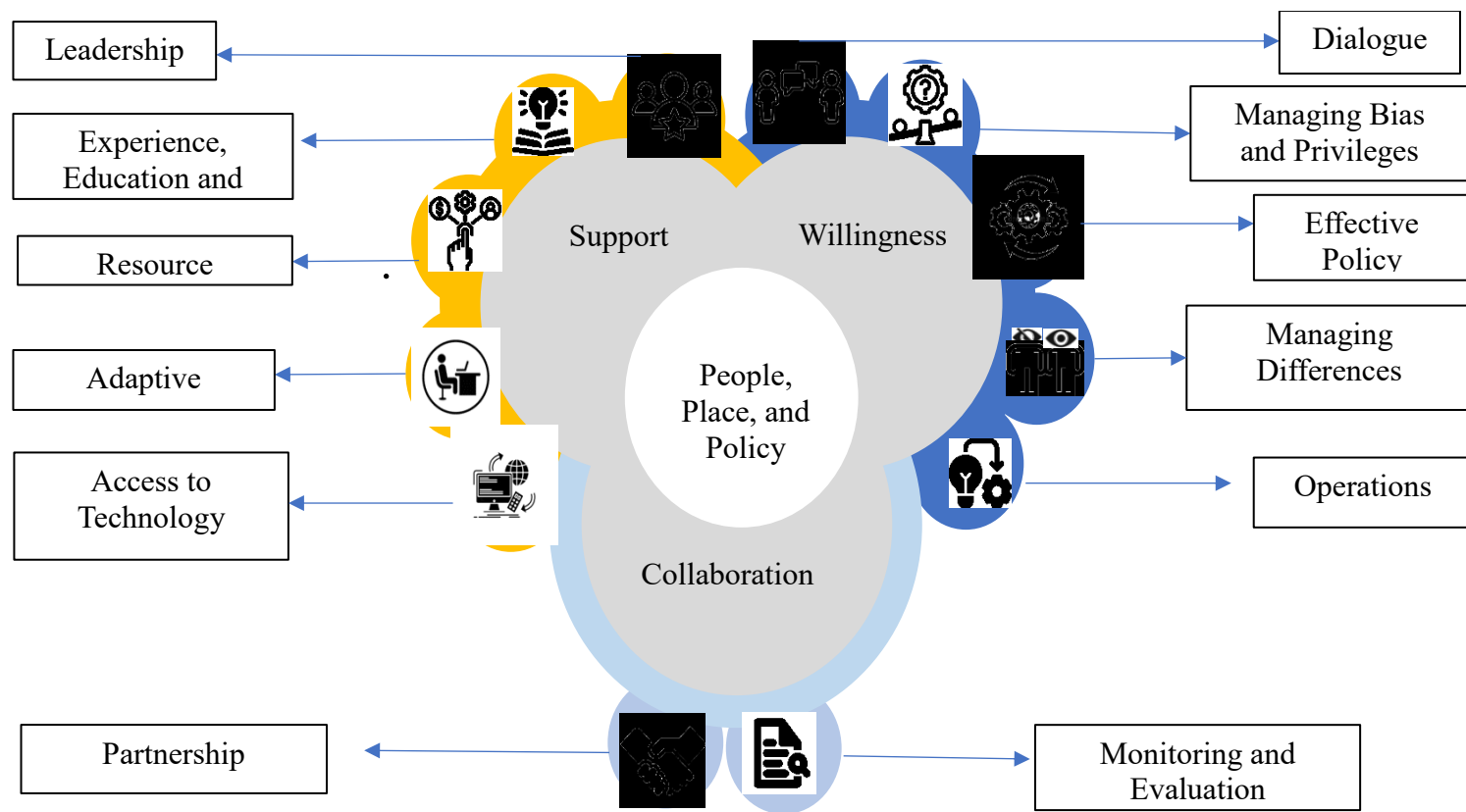
Appendix

Appendix A: Semi-Interview Guide for employee with visual impairment

Job Application

1. Describe your experience applying for job(s) as a person with visual impairment.

    a. How did you learn about the job opening?

    b. How easy or difficult it was and what made it so

    c. Did it change over time? In What way?

2. If you were the one hiring, what will you have done differently?

    Employment

3. How would you describe your work environment?

    (Hint: The people, The place, The policy)

4. Describe your day-to-day activities at work and how it is possible?

5. Describe how you relate, share information, and communicate with colleagues at your workplace.

6. What accommodation does your workplace have to help you discharge your duties? (Accommodation policy)

    a. Are the provisions adequate?

    b. What are the provisions?

    c. What is lacking?

7. How can the workplace be prepared for people with visual impairment?

8. Describe the policies that are in place for you as a person with visual impairment.

9. What are your experiences and concerns in your current/last workplace?

10. Tell us about the positive experiences and disappointments you have had working?

11. Other experiences/contribution you would like to share but are not covered in the questions.

Appendix B: Demographic Data for Employee with Visual Impairment

Identification Number _____

Age_____

Gender_____

Questionnaire

1. What position do you hold at your current job?

   Specify _____

2. What kind of industry do you work in?

a) Academic
b) Health.
c) Agriculture
d) Computer and Technology
e) Others (specify)_____

3. For how long have you been employed?

a) 6month – 1 year
b) 1 -2 years
c) 2-5 years
d) Others. (Specify) _____

1. Within your period of employment, how many times have you changed Job?

1. never
2. Once
3. 2 -3 times
4. 3-5 times
5. Others. (specify) _____

e) At what age did you start your first Job?

6. Less than 18 years

7. 18- 24 years

8. Others. (specify) _____

Appendix C: Semi-Interview Guide for Employment Domain Expert.

Note that the term employment environment is an umbrella word that covers the workplace, the people, and the organization's policy.

1. What do you have or do that makes employing people with visual impairment easier?
2. How do you go about the recruitment/onboarding of this population at your organization and their job roles?
3. Describe your experience employing people with visual impairment.
4. What works for you efficiently in creating an inclusive organization, and what are the challenges?

Hint: With respect to the structure/policy you have in place.

5. Let's talk about retention; What is your experience with how long people with visual impairment stay at the organization compared to people without visual disability?
6. What are the barriers and facilitators to developing and sustaining an enabling environment for this population? How have you addressed these barriers?
7. Let's talk about colleagues, client relations, and perception about interacting with people with Visual impairment. What has been your experience in this area?
8. An employer is concerned that employing people with visual impairment could be costly and affect a company's productivity or turnout. What is the economic implication of employing people with visual impairment in your organization? How has your organization maintained its standards and still sustained inclusiveness?
9. Personal experiences and insights you would like to share in relation to this topic but have not been covered.

Appendix D: Demographic Data for Employment domain experts

Identification Number _____

Age_____

Gender_____

Questionnaire

3. What is your job role in employment or workplace design for people with visual impairment?

    Specify _____

4. What kind of industry do you work in?

f) Academic
g) Health.
h) Agriculture
i) Computer and Technology
j) Others (specify)_____

3. For how long have you been involved in workplace design for people with visual impairment?

f) Less than a year
g) 1 -3 years
h) 2-5 years
i) Others. (Specify) _____

Appendix E: Ethics Approval

Centre intégré universitaire de santé et de services sociaux du Centre-Sud-de-l'Île-de-Montréal

Québec ✦✦✦

Le 07 novembre 2022

Monsieur Walter Wittich, Ph. D.
CRIR – Centre de réadaptation Lethbridge-Layton-Mackay, établissements MAB et Mackay, CCOMTL CRIR – Institut Nazareth et Louis-Braille, CISSS de la MC
École d'optométrie de l'Université de Montréal Pavillon 3744, rue Jean-Brillant, bureau 230-45

Objet : Approbation éthique finale du Comité d'éthique de la recherche en réadaptation et en déficience physique
Titre : Development of a tool to assess the preparedness of employment environment to employ people with visual impairment

Numéro du projet : MP-50-2023-1654

Monsieur,

Le Comité d'éthique de la recherche en réadaptation et en déficience physique a évalué votre projet de recherche à sa réunion plénière du 4 octobre 2022. Lors de cette réunion, les documents suivants ont été examinés :

- Protocole de recherche (Ethics protocol_25 07 2022.pdf) [date : 25 juillet 2022, version : Pdf document]
- Formulaire d'information et de consentement (Informed consent form_French 25 07 2022.docx) [date : 25 juillet 2022, version : Microsoft word]
- Formulaire d'information et de consentement (Informed consent form_English25 07 2022.docx) [date : 25 juillet 2022, version : Word]
- Recrutement (Interview Letter to Employers and employment personnel 2.0.docx) [date : 25 juillet 2022, version : Word]
- Recrutement (CRIR:CNIB Recruitment letter.docx) [date : 25 juillet 2022, version : Word]
- Questionnaire (INTERVIEW QUESTION GUIDE.docx) [date : 25 juillet 2022, version : Word]
- Questionnaire (Demographic Data_Employment domain.docx) [date : 25 juillet 2022, version : Word]
- Questionnaire (Demographics-People with visual impairment.docx) [date : 25 juillet 2022, version : Word]

- Budget (IT25811 Mitacs Accéleration - Avis d'octroi de subvention - 1er versement (Wittich_Canadian National Institute for the Blind).pdf) [date : 05 août 2022]

Comité d'éthique de la recherche clinique (CERC)

Bureau de la conduite responsable en recherche

Université de Montréal

Status for project TAPE measure - employer

General information	
Nagano identifier (acronym)	TAPE measure - employer
Numbers	2022-1832
Project type	Demande de reconnaissance d'une évaluation éthique effectuée par un CER d'un établissement affilié à l'Université de Montréal
Delegated review	Yes
If sub-study, main study	No parent
Research field	
Office	Comité d'éthique de la recherche clinique
Ethical evaluation site	Local evaluation
Status	Authorized for research
Principal user	Wittich, Walter
Reviewing REB approval date	2022-11-09
Renewal date	2023-11-09

REB meetings		
Name	**Decision**	**Date**
Comité meeting on 2022-11-09	Approved	2022-11-09

Statutes of the REB project		
Status	**Creation date**	**User**
Approved	2022-11-09 13:26	Assémat, Camille
Under review	2022-11-09 13:26	Assémat, Camille
Ready	2022-11-09 13:24	Assémat, Camille
Submitted	2022-11-08 07:47	Wittich, Walter
Created	2022-11-07 15:58	Wittich, Walter

Statutes forms
11rea-CERC - F11rea-CERC-Formulaire de demande de reconnaissance d'une approbation éthique

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effectuée par un CER d'un établissement affilié à l'Université de Montréal

Form	Created at	Submitted at	Approved / processed	Submitted by
F11rea-CERC-5456	2022-11-07 15:58	2022-11-08 07:47	2022-11-09 13:26	Wittich, Walter

Appendix F: Informed Consent form

Co-design of the content of an eventual employer version of the TAPE (**T**ool to **A**ssess the **P**reparedness for **E**mployment) measure

INFORMED CONSENT FORM

1. STUDY TITLE

Co-design of the content of an eventual employer version of the TAPE (**T**ool to **A**ssess the **P**reparedness for **E**mployment) measure

2. PRINCIPAL INVESTIGATORS

Walter Wittich, PhD, FAAO, CLVT
Associate professor
Université de Montréal – École d'optométrie ,3744 Jean-Brillant, Bureau 260-7,
Montreal QC, H3T 1P1.
(514) 343-7962
walter.wittich@umontreal.ca

3. COLLABORATORS

Dr. Mahadeo A. Sukhai, Ph.D.
Vice-President Research and International Affairs & Chief Accessibility Officer
Canadian National Institute for the Blind (CNIB) 1929 Bayview Avenue Toronto, ON,
M4G 3E8
ARIA Team (Accessibility, Research & International Affairs)
(437)775 9097
mahadeo.sukhai@cnib.ca

Tosin Ogedengbe
Master's student
Université de Montréal – École d'optométrie
3744 Jean-Brilliant, Bureau 6442, Montreal QC, H3T 1P1
(438) 337 8755
tosin.ogedengbe@umontreal.ca

4. INSTITUTIONAL PARTNERS

Canadian National Institute for the Blind (CNIB)

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5. FUNDING AGENCY

This project is funded by CNIB in partnership with Mitacs (IT25811 Mitacs Accélération).

6. INTRODUCTION

We are inviting you to participate in a research project. Before agreeing to participate in this project, please take the time to read and carefully consider the following information.
This consent form explains the aim of this study, the procedures, advantages, risks, and inconveniences, as well as the persons to contact, if necessary.
This consent form may contain words that you do not understand. We invite you to ask any question that you consider useful to the investigator and the other staff members assigned to the research project and ask them to explain any word or information that is not clear to you.

7. DESCRIPTION OF THE PROJECT AND ITS OBJECTIVES

Using a co-creation approach, the goal of this study is to develop the content a tool to assess the preparedness of the employment environment (The people, The place, and the policies) to employ people with visual impairment. Focus group discussion will involve employment domain experts and people living with a visual impairment.

To carry out this research project, we intend to recruit a total of 30 participants made up of 15 employers and workplace experts, and 15 people with visual impairment with an employment history (minimum of 6 months), as well as those whose last work experience falls within the last 10 years, for the focus group interview.

8. NATURE OF PARTICIPATION

Participating in this study will begin with a signed or verbal (recorded) consent to indicate your approval to be a part of the research. You will receive a study summary and other relevant materials to adequately prepare for a focus group meeting.

By agreeing to participate in this project, you will meet members of the research team who will guide you through the process. Participation will involve completing a short demographic question and participate in a focus group discussion with employers or experts in the field of employment, and people with visual impairment. The demographic form will be sent by email or given at the location of the in-person meeting, depending on the mode of meeting. This focus group discussion will be held in person or virtually via zoom for a duration of 60- 90mins.

We will schedule the date and time for the focus group meeting according to your availability. Focus groups will be mixed with up to six participants per group, and 5 focus group in all. In this group you will participate in discussions and interviews to share ideas on topics related to this workplace preparedness for people with visual

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impairment. Each meeting will be recorded for transcription and data collection purpose.

Several weeks after the meeting, participants will receive a summary document via email, and will be asked to provide feedback via email on our summary analyses, to ensure that the comments were well understood and interpreted. This, feedback is expected within two weeks. The information and knowledge shared will be used only for the development of the content of a model to help employers design their workplace for people with visual impairment for optimal productivity, and to the benefit of both the employment environment and people with visual impairment. Thus, improving the unemployment rate and overall quality of life of this population.

9. PERSONAL BENEFITS OF PARTICIPATING IN THE STUDY

You will not obtain any personal benefit from your participation in this research project. The results obtained nonetheless will contribute to the advancement of scientific knowledge in this field of research. They could also facilitate the socio-professional integration of thousands of people living with a visual impairment and improve their quality of life.

10. RISKS AND INCONVENIENCES ASSOCIATED WITH PARTICIPATING IN THE STUDY

RISKS
There are no risks involved in participation in this project. Information shared during the discussions will be confidential and used only for the intended suppose.   Your participation in the study will not affect your roles and your responsibilities in your workplace or your employment status.

INCONVENIENCES
Time spent participating in this research project and transit are the main inconveniences associated with this research project. There is also the possibility of having a psychological discomfort caused by the discussions.

11. ACCESS TO THE RESULTS AT THE END OF THE RESEARCH

At the end of the study, do you want to have access to the general results of this research project.

Yes ☐   email or address: _____

No ☐

12. CONFIDENTIALITY

All personal information collected concerning you during the study will be coded to ensure its confidentiality. Only the members of the research team will have access to it. However, for research project control purposes, your research record could be consulted by a person mandated by the REB of the CRIR institutions or by the Direction de l'éthique et de la qualité du ministère de la Santé et des Services sociaux du Québec This person adheres to a policy of strict confidentiality. The research data -Paper-based

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data will be safely secured in a locked cabinet at Wittich's visual impairment laboratory, whereas electronic data and recordings will be password protected and stored in the cloud (on UdeM's OneDrive) for a period of at least 7 years following the end of the project, after which it will be destroyed. If the results of this study are presented or published, no information that can identify you will be included. We request that you remain discreet regarding the identity of the focus group participants and the comments made there.

13. VOLUNTARY PARTICIPATION AND RIGHT OF WITHDRAWAL

It is understood that your participation in this research project is completely voluntary and that you remain free to terminate your participation at any time without having to give a reason and without suffering any prejudice of any kind.
However, given that this is a focus group, destruction of the recordings and transcriptions will be impossible. The dialogues will be kept to maintain the coherence of the discussion.

14. SUBSEQUENT STUDIES

It is possible that the results of this study will give rise to another research project. In this context, do you authorize the persons in charge of this project to contact you again and ask if you would like to participate in this new project?

☐ no
☐ yes, for one year *
☐ yes, for two years *
☐ yes, for three years *

* Note, if you check off one of these three options, your personal contact information will be kept by the Lead Investigator for the period which you have selected.

15. RESPONSIBILITY OF THE RESEARCH TEAM

By accepting to participate in this study, you do not renounce any of your rights nor do you release the investigators, or the institution involved from their civil or professional responsibilities.

16. COMPENSATORY INDEMNITY

You will receive $50 in consideration of the constraints and inconveniences resulting from your participation in the research project.

17. RESOURCE PERSONS

If you have any questions regarding the research project, if you wish to withdraw from this study or if you wish to inform the research team regarding an incident, you may contact:

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Dr. Walter Wittich, by phone at (514) 343-7962 or by email at walter.wittich@umontreal.ca.

If you have any questions regarding your rights and responsibilities or your participation in this research project, you may contact the Research Ethics Coordinator for the CRIR's institutions, by email at the following email address: cercrir@ssss.gouv.qc.ca.

For these questions, you may also contact the Local Complaints Commissioner of your institution:

Centre de réadaptation Lethbridge-Layton-Mackay du CIUSSS du Centre-Ouest-de-l'Île-de-Montréal
Phone : 514-340-8222, extension 24222
Email : ombudsman.ccomtl@ssss.gouv.qc.ca

Institut Nazareth et Louis-Braille
CISSS de la Montérégie-Centre
Phone : 450-466-5434 of toll free 1-866-967-4825, extension 8884
Email : commissaire.cisssmc16@ssss.gouv.qc.ca

18. CONSENT

I declare that I have read and understood this project, the nature and the scope of my participation, as well as the risks and inconveniences to which I may be exposed, as presented in this document. I have had the opportunity to ask all my questions regarding the different aspects of the study and to receive answers to these questions. A signed copy of this information and consent form must be provided to me.

I, undersigned, voluntarily accept to participate in this study. I can withdraw my participation in this study at any time without prejudice of any kind. I certify that I was allowed all the time necessary to make my decision.

Participant's Name: SIGNATURE

_____   _____

Signed at _____ on _____, 20_____

19. COMMITMENT OF THE INVESTIGATOR OR HER/HIS REPRESENTATIVE

I, undersigned, _____, certify:

(a)   that I have explained to the signatory the terms of the present form;
(b)   that I have answered any questions that she/he asked me in this regard;

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(c)   that I have clearly indicated that she/he remains, at any time, free to terminate her/his participation in the research project described above;

(d)   that I will provide her/him a signed and dated copy of this form.

_____
Signature of the Lead Investigator or his representative

Signed on _____ of _____, 20_____

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APPENDIX

Centre de réadaptation Lethbridge-Layton-Mackay
- ☐ Centre de réadaptation Constance-Lethbridge
- ☐ Centre de réadaptation MAB-Mackay

CIUSSS du Centre-Ouest-de-l'Île-de-Montréal
Phone : 514-340-8222, extension 24222
Email : ombudsman.ccomtl@ssss.gouv.qc.ca

Institut universitaire sur la réadaptation en déficience physique de Montréal
- ☐ Centre de réadaptation Lucie-Bruneau
- ☐ Institut Raymond-Dewar
- ☐ Institut de réadaptation Gingras-Lindsay de Montréal

CIUSSS du Centre-Sud-de-l'Île-de-Montréal
Phone : 514-593-3600
Email : commissaireauxplaintes.ccsmtl@ssss.gouv.qc.ca

Hôpital juif de réadaptation
CISSS de Laval
Phone : 450-668-1010, extension 23628
Email : plaintes.csssl@ssss.gouv.qc.ca

Institut Nazareth et Louis-Braille
CISSS de la Montérégie-Centre
Phone : 450-466-5434 of toll free 1-866-967-4825, extension 8884
Email : commissaire.cisssmc16@ssss.gouv.qc.ca

Centre de réadaptation en déficience physique des Laurentides
CISSS des Laurentides
Phone : 450-432-8708
Email : info-plaintes@ssss.gouv.qc.ca

Centre de réadaptation en déficience physique de Lanaudière
CISSS de Lanaudière
Phone : 450-759-5333, extension 2133 or toll-free 1-800-229-1152, extension 2133
Email : plaintes.cissslan@ssss.gouv.qc.ca